

THE GEORGE WASHINGTON UNIVERSITY BULLETIN



UNDERGRADUATE
AND
GRADUATE
CATALOGUE



1968-69

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Office of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D.C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 434. Zip code is essential for mailing catalogues.

Admission

Graduate

Arts and Sciences.....Dean of The Graduate School of Arts and Sciences
Education.....Dean of The School of Education
Engineering and Applied Science.....Dean of The School of Engineering
and Applied Science

Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning

Dean of The School of Government and Business Administration
International Affairs and Public Affairs.....Dean of
The School of Public and International Affairs

Law.....Dean of The National Law Center
School of Medicine.....1331 H Street, Washington, D.C. 20005

Undergraduate.....Office of Admissions

Alumni Association.....Alumni Office

Medical Alumni Association.....1331 H Street, Washington, D.C. 20005

Financial Aid.....Student Financial Aid Office

Foreign Students.....Adviser to International Students

Gifts and Bequests.....Resources Program

Housing

Men.....Dean of Men

Women.....Dean of Women

Off-campus and Noncredit Courses.....Dean of The College of General Studies

Student Employment.....Student and Alumni Career Services Office

Summer Sessions.....Dean of The Summer Sessions

Transcripts of Records.....Registrar

Veterans Education.....Registrar

THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXVII, Number 9, March 1968

Published by The University at Washington, D.C. 20006
MONTHLY: SEPTEMBER, DECEMBER, APRIL, AUGUST
(2 ISSUES IN NOVEMBER AND JANUARY; 3 ISSUES IN MARCH)

Second Class Postage Paid at Washington, D.C.

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

**UNDERGRADUATE AND
GRADUATE CATALOGUE 1968-69**

**Arts and Sciences, Education,
Government and Business Administration,
Public and International Affairs**

WASHINGTON, D.C. 20006



This undergraduate and graduate catalogue lists the programs, courses, and faculties of Columbian College of Arts and Sciences; the Graduate School of Arts and Sciences; the School of Education; the School of Government and Business Administration; and the School of Public and International Affairs.

It also contains information on the Division of University Students. In this Division are registered students who wish to take University courses for credit or as auditors but are not pursuing degree programs.

For information concerning the University's programs and faculties in Engineering and Applied Science, Law, and Medicine, request the appropriate catalogue. See "Annual Issues of the University Bulletin," page 434.

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1969

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THE UNIVERSITY CALENDAR

1968-69

1968 FALL SEMESTER

- September 12* Orientation for students from foreign countries *Thursday*
September 13 Placement tests and advising for entering freshmen who did not attend Summer Advance Registration sessions *Friday*
September 14 Advising *Saturday*
September 16 Advising of transfer students *Monday*
September 16 Placement tests *Monday*
September 16 Orientation Assembly for all new students *Monday*
September 16 University Faculty Assembly Meeting *Monday*
September 17-18 Registration: *Tuesday-Wednesday*
Application for February graduation due as a part of registration
September 19 Classes begin *Thursday*
October 12 Application for November Ed.D. Comprehensive Examinations due *Saturday*
October 17 Board of Trustees Meeting *Thursday*
November 9 National Teacher Examinations *Saturday*
November 11 Veterans Day (holiday) *Monday*
November 16 Ed.D. Comprehensive Examinations *Saturday*
November 27 Thanksgiving Recess begins after last class *Wednesday*
December 2 Classes resume *Monday*
December 9 Doctoral Dissertations of February candidates due *Monday*
December 13-14 International Affairs and Public Affairs Master's Comprehensive Examinations *Friday-Saturday*
December 17 Application for January Ed.D. and A.M. in Ed. Comprehensive Examinations due *Tuesday*
December 21 Christmas Recess begins after last class *Saturday*
January 6 Classes resume *Monday*
January 6 Master's Theses of February candidates due *Monday*

- January 11* Ed.D. and A.M. in Ed. Comprehensive Examinations *Saturday*
January 14 Last day of Fall-semester Classes *Tuesday*
January 16 Board of Trustees Meeting *Thursday*
January 17-25 Examination Period *Friday-Saturday*
January 20 Inauguration Day (holiday) *Monday*

1969 SPRING SEMESTER

- January 27* Placement Tests *Monday*
January 27-29 Advising for freshmen, sophomores, and all new students *Monday-Wednesday*
**January 30-February 1* Registration: *Thursday-Saturday*
February 3 Spring-semester Classes begin *Monday*
February 11 University Faculty Assembly Meeting *Tuesday*
February 21 Holiday *Friday*
February 22 Winter Convocation (holiday) *Saturday*
March 20 Board of Trustees Meeting *Thursday*
March 29 Application for April Ed.D. and A.M. in Ed. Comprehensive Examinations due *Saturday*
April 1 Doctoral Dissertations of June candidates due *Tuesday*
April 2 Spring Recess begins after last class *Wednesday*
April 9 Classes resume *Wednesday*
April 12 National Teacher Examinations *Saturday*
April 25-26 International Affairs and Public Affairs Master's Comprehensive Examinations *Friday-Saturday*
April 26 Ed.D. and A.M. in Ed. Comprehensive Examinations *Saturday*
May 5 Master's Theses of June candidates due *Monday*
May 15 Board of Trustees Annual Meeting *Thursday*
May 20 Last day of Spring-semester Classes *Tuesday*
May 23-31 Examination period *Friday-Saturday*
May 30 Memorial Day (holiday) *Friday*
June 8 Baccalaureate Service *Sunday*
June 8 Commencement *Sunday*

1969 SUMMER SESSIONS†**1969 FALL SEMESTER**

- September 16-17* Registration: *Tuesday-Wednesday*

* Registration is conducted alphabetically according to the first letter of the student's surname. The alphabetical breakdown and the hours of registration will be stated in the *Schedule of Classes* which is available well in advance of each semester.

† Dates will be announced in the Calendar of the 1969 Summer Sessions Catalogue published in December 1968.

THE UNIVERSITY

HISTORY

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington, whose name it bears, is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages thereof, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian Univer-

sity period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

PURPOSE AND OBJECTIVES

The purpose of The George Washington University was to realize "the aspirations of Washington, Jefferson, and Madison, for the erection of a university at the seat of the Federal Government." Over the years it has been the aim to develop the University ideal in the Nation's Capital with a view toward meeting the changing needs of society while continuing to pursue the traditional principles of learning and research.

The George Washington University now rededicates itself and all the resources at its command to the pursuit of knowledge and its dissemination.

To this end:

The University recognizes its special opportunities in and obligations to one of the principal capitals of the world. It is a primary objective of the University to utilize its historical, geographical, and functional relationship to the Nation's Capital and the Washington community in continuing the development of a great nationally and internationally oriented university.

The University recognizes the needs of our times and accepts the challenge to develop each student's potential abilities to the fullest extent.

The University is and should remain privately controlled, nonsectarian, and co-educational.

Admission to the University is determined only in terms of the personal character and academic qualifications of the candidates.

A broadly based liberal education is fundamental to the total program of the University.

Expansion of graduate and professional studies and research and the utilization for this purpose of the excellent research facilities and materials available in the Nation's Capital are basic to the continuous development of the University's educational program.

The provision of superior instruction and facilities and the application of high standards of entrance qualifications and academic achievement to all students whether full-time or part-time, on-campus or off-campus, are major missions of the University.

A balanced program of student extracurricular activities is an integral part of the University program.

The University will continue to strive to meet the evident needs of an enlarged student body while governing the size of enrollment by its capacity to supply adequate staff and facilities for the excellent teaching and research which it espouses.

THE COLLEGES, SCHOOLS, AND DIVISIONS

The George Washington University includes eleven colleges, schools, and divisions, as follows:

*Columbian College of Arts and Sciences**, through its lower and upper divisions, offers four-year programs in the arts and sciences leading to the degrees of Bachelor of Arts, Bachelor of Science, and (in cooperation with the Department of Pathology and the University Hospital) Bachelor of Science in Medical Technology. The lower division also provides the first two years of the prelegal and premedical programs; the preprofessional work required for admission to the School of Education, the School of Government and Business Administration, and the School of Public and International Affairs; and a two-year terminal Associate in Arts curriculum in Accounting. The Faculty of Columbian College has academic jurisdiction over the off-campus programs leading to the degrees of Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography. These off-campus programs are administered by the College of General Studies.

*The Graduate School of Arts and Sciences** offers advanced study and research leading to the degrees of Master of Arts, Master of Fine Arts, Master of Music, Master of Science, and Doctor of Philosophy.

*The School of Medicine** offers work leading to the degree of Doctor of Medicine.

The National Law Center offers courses leading to the degrees of Juris Doctor, Master of Laws, Master of Comparative Law, Master of Comparative Law (American Practice), and Doctor of Juridical Science; and special programs in Continuing Legal Education.

The School of Engineering and Applied Science offers courses leading to the degree of Bachelor of Science in the following areas: Civil Engineering, Electrical Engineering, Measurement Science, and Mechanical Engineering. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education; graduate studies leading to the degrees of Master of Arts in Education, Master of Arts in Teaching, Education Specialist, and Doctor of Education.

The School of Government and Business Administration offers undergraduate programs leading to the degree of Bachelor of Business Administration and graduate programs leading to the degrees of Master of Arts in Government, Master of Business Administration, Master of Public Administration, Master of Urban and Regional Planning; the Graduate Certificate in Health Care Administration; the degrees of Doctor of Business Administration and Doctor of Public Administration. The School also has academic jurisdiction over off-campus programs leading to the following degrees: Bachelor of Science in General Studies, Master of Science in Administration, and Master of Science in Business Administration. These off-campus programs are administered by the College of General Studies.

*Columbian College of Arts and Sciences and the Graduate School of Arts and Sciences cooperate with the School of Medicine in offering the combined degrees of (1) Bachelor of Arts and Doctor of Medicine and (2) Master of Science and Doctor of Medicine.

The School of Public and International Affairs offers undergraduate programs leading to the degree of Bachelor of Arts and graduate programs leading to the Certificate of the Institute for Sino-Soviet Studies and the degree of Master of Arts. The School of Public and International Affairs has academic jurisdiction over the off-campus program leading to the degree of Master of Science in International Affairs, which is administered by the College of General Studies.

The College of General Studies supplements the adult education program of the University through campus and off-campus study; conferences, seminars, and special projects; and continuing education and noncredit programs. This College also administers the off-campus programs over which the Columbian College of Arts and Sciences Faculty, the School of Government and Business Administration, and the School of Public and International Affairs have academic jurisdiction.

The Division of University Students makes available courses for students not candidates for degrees in this University.

The Summer Sessions.

RESEARCH PROGRAMS

Research programs sponsored by agencies of the Federal Government and by private foundations and industries are conducted. Cooperation between these programs and the various departments of instruction is as close as the nature and needs of the programs and departments will permit.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The National Law Center is a charter member of the Association of American Law Schools and is approved by the Section of Legal Education and Admissions to the Bar of the American Bar Association. The School of Medicine is a member of the Association of American Medical Colleges and is one of the medical colleges which have been continuously approved by the American Medical Association. Curricula of the School of Engineering and Applied Science in Civil, Electrical, and Mechanical Engineering are accredited by the Engineers' Council for Professional Development. The School of Education is a charter member of the American Association of Colleges for Teacher Education and is accredited by the National Council for Accreditation of Teacher Education. The School of Government and Business Administration has maintained full membership in the Middle Atlantic Association of Colleges of Business Administration since 1961. It joined the Council on Graduate Education for Public Administration in 1966. The programs in Public Accounting designed to prepare students for Certified Public Accountants examinations have been approved by the state boards of New York and of Maryland. The program in Hospital Administration has been accredited by the Association of University Programs in Hospital Administration since 1962. The Department of Chemistry is on the approved list of the American Chemical Society.

LOCATION

The University is in downtown Washington four blocks west of the White House and east of the Potomac River with its extensive parkway. Readily accessible are many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Army, the Department of the Navy, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor, as well as the National Archives, the Capitol, the Library of Congress, the National Academy of Sciences, the Pan American Union, the National Geographic Society, the World Bank, the Brookings Institution, the National Gallery of Art, and the Corcoran Gallery of Art.

GOVERNMENT

The University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the President of the University is an ex officio member. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

THE UNIVERSITY LIBRARIES

The Library collections of the University are housed in the University Library, the general library of the University, and in the departmental libraries of law and medicine.

These collections contain approximately 437,000 volumes—318,000 in the University Library, 84,500 in the Law Library, and 34,500 in the Medical Library. Approximately 20,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 3,000 periodicals.

Information concerning the use of the Libraries may be obtained at the Library service desks.

The Library is administered for the curricular, reference, and recreational needs and interests of the students. Instruction in the use of the library is given upon request by the reference librarians. The Library endeavors to assist students and all members of the University to use the rich library resources of Washington and the unusual opportunities they offer for extensive research. Interlibrary loan arrangements are maintained with other libraries in the city and in the United States.

The student has access to the Library of Congress, the Public Library of the District of Columbia and its branches, the libraries of the Pan American Union, the Bureau of Railway Economics, the U.S. Department of Agriculture, the Smithsonian Institution, the National Library of Medicine, and many of the other great special collections of the government departments.

The hours of the University Library are Monday through Friday, 8:30 a.m. to 10:00 p.m.; Saturday, 9:00 a.m. to 5:00 p.m.; Sunday, 2:00 to 10:00 p.m. The Law Library is open Monday through Friday, 8:00 a.m. to 12:00 midnight; Saturday, 9:00 a.m. to 5:00 p.m.; and Sunday, 2:00 to 10:00 p.m. The

Medical Library is open Monday through Friday, 8:30 a.m. to 10:00 p.m.; Saturday, 8:30 a.m. to 5:00 p.m.; Sunday, 12:00 to 5:00 p.m.

THE BOARD OF TRUSTEES OF THE UNIVERSITY

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TERM ENDING 1969

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TERM ENDING 1970

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 Brooks Hays, B.A., LL.B., LL.D., L.H.D., D.C.L., D.D., HH.D.

* Nominated by the alumni.

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 Franklin Jerome Lunding, LL.B., LL.D.
 Edward Karrick Morris, LL.D.
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 LL.D., Sc.D., L.H.D.
 Alfred Henry Lawson, LL.B., LL.D.
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 Benjamin Mosby McKelway, Litt.D.
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 Alexander Wetmore, Ph.D., Sc.D.
 Charles Stanley White, M.D., Sc.D.
 Lloyd Bennett Wilson

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Mr. Phillips, <i>Vice Chairman</i>	Mr. Strauss
Dr. Carmichael	Mr. Wilson
Mr. Ellison	Mr. Woodzell
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Mr. Baker	Dr. Ripley
Mr. Cook	

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Mr. Hays	

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Mr. Strauss, <i>Chairman</i>	Mr. Duncan
Mr. Jennings, <i>Vice Chairman</i>	Mr. Lunding
Mr. Butler	Mr. C. E. Smith
Miss Cochran	Mr. Wise

COMMITTEE ON UNIVERSITY TRUSTEESHIP

Mr. C. D. Smith, <i>Chairman</i>	Mr. Thompson
Mr. Ellison, <i>Vice Chairman</i>	Mr. Wright
Mr. Munter	Mr. Zuckert

OFFICERS OF ADMINISTRATION*

THE UNIVERSITY

Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President*
 Claud Max Farrington, M.A., *Assistant to the President for Special Projects*
 Harold Frederick Bright, Ph.D., *Vice President for Academic Affairs*
 Carl Hugo Walther, M.C.E., Ph.D., *Assistant Vice President for Academic Affairs*
 Henry William Herzog, B.S., *Vice President and Treasurer*
 Humbert John Cantini, Jr., LL.B., *Assistant Vice President and Assistant Treasurer*
 William David Johnson, B.S., *Comptroller; Director of the Budget*
 Margaret Payne Greene, B.S., *Assistant Treasurer, Contract Research*
 Maurice Kingsley Heartfield, Jr., B.A., *Assistant Treasurer; Director, Office of Student Financial Aid*
 John Collum Einbinder, B.A. in Govt., *Business Manager*
 Warren Gould, M.A., *Vice President for Resources*
 Louis Harkey Mayo, B.S., J.S.D., *Vice President for Advanced Policy Studies*
 William Parkhurst Smith, Jr., B.A., M.B.A., *Vice President for Student Affairs*

Curtis Tufts Bacon, *Director of Personnel Services*
 Richard Bernard Castell, B.A., M.D., *Director of Health Services*
 Robert Faris, B.S., *Director of Men's Athletics*
 Nelson Mead Head, B.S., *Administrator of the Office of Sponsored Research*

* The President of the University, the Vice President for Academic Affairs, the Registrar of the University, and the Director of Admissions of the University are ex officio members of all faculties of the colleges and schools of the University.

John Terrill Hohman, B.A., M.A. in Ed., *Acting Dean of Men*
 Frederick Russell Houser, M.A., *Registrar*
 Elmer Louis Kayser, Ph.D., LL.D., *University Historian*
 John Francis Latimer, Ph.D., Litt.D., *University Marshal*
 Margaret Nolte, Ph.D., *Dean of Women*
 Joseph Young Ruth, B.A., *Director of Admissions*
 Ellwood Anthony Smith, B.S. in Ed., *Director of Alumni Relations*
 Loretta May Stallings, M.A., Ed.D., *Director of Women's Athletics*
 William Alexander Riddell Walker, M.A., *Adviser to International Students*
 Donald Winkler, B.A., M.S., *Director of Public Relations*
 Rupert Woodward, B.S. in L.S., M.A., *Director of Libraries*

THE COLLEGES, SCHOOLS, AND DIVISIONS

Calvin Darlington Linton, Ph.D., *Dean of Columbian College of Arts and Sciences*
 Arthur Edward Burns, Ph.D., *Dean of the Graduate School of Arts and Sciences*
 John Parks, M.S., M.D., *Dean of the Medical Center*
 Robert Kramer, B.A., LL.B., *Dean of the National Law Center*
 Harold Liebowitz, D.Ae.E., *Dean of the School of Engineering and Applied Science*
 Blake Smith Root, M.A., Ed.D., *Acting Dean of the School of Education*
 James Carlton Dockeray, Ph.D., *Dean of the School of Government and Business Administration*
 Hiram Miller Stout, Ph.D., *Dean of the School of Public and International Affairs*
 Eugene Ross Magruder, M.B.A., Ph.D., *Dean of the College of General Studies*
 John Gage Allee, Jr., Ph.D., *Dean of the Division of University Students*
 Charles William Cole, Ph.D., *Dean of the Summer Sessions*
 George Martin Koehl, M.A., *Associate Dean of Columbian College of Arts and Sciences*
 Clayton Bernard Ethridge, M.D., *Associate Dean of the Medical Center, for Postgraduate Education; Medical Director, University Hospital and Clinics*
 Angus MacIvor Griffin, Ph.D., *Associate Dean of the Medical Center, for Administration and Planning*
 Frank Nelson Miller, Jr., B.S., M.D., *Associate Dean of the Medical Center, for Student and Curricular Affairs*
 William Wallace Kirkpatrick, B.A., LL.B., *Associate Dean of the National Law Center*
 Ralph Clarke Nash, Jr., B.A., J.D., *Associate Dean of the National Law Center, for Graduate Studies, Research, and Projects*
 Edward Andrew Potts, B.A., LL.B., *Associate Dean of the National Law Center*
 Victor Frederick Ludewig, B.S., *Administrator of the University Hospital and Clinics*
 Joseph Louis Métivier, Jr., M.A., *Assistant Dean of Columbian College of Arts and Sciences*
 Robert Clinton Rutledge, Ph.D., *Assistant Dean of Columbian College of Arts and Sciences*

Harry Elwood Yeide, Jr., Ph.D., *Assistant Dean of Columbian College of Arts and Sciences*

William Francis Edward Long, Ph.D., *Assistant Dean of the Graduate School of Arts and Sciences*

Robert Edward Baker, M.A., Ed.D., *Assistant Dean of the School of Education*

Edwin Joseph Baughman Lewis, B.A., M.B.A., *Assistant Dean for Special Projects in the School of Government and Business Administration*

Paul Vernon Bissell, Ph.D., *Assistant Dean of the College of General Studies*

Robert Whittington Eller, B.S., Ed.D., *Assistant Dean of the College of General Studies*

Robert Lee Williams, M.A., Ed.D., *Assistant Dean of the Summer Sessions*

Isabella Frances Young, B.A. in L.S., *Librarian of the Medical Library*

Hugh Yancey Bernard, B.A., B.S. in L.S., J.D., *Librarian of the Law Library*

COMMITTEES OF THE UNIVERSITY 1967-68

COMMITTEE ON ACADEMIC POLICY

The Committee on Academic Policy, whose Chairman is the Vice President for Academic Affairs, is composed of the following members: the deans of the colleges, schools, and divisions; the Chairman of the Executive Committee of the University Senate; the Vice President and Treasurer; the Vice President for Resources; the Vice President for Advanced Policy Studies; the Vice President for Student Affairs; the Assistant Vice President for Academic Affairs; the Assistant Vice President and Assistant Treasurer; the Registrar; the Director of Admissions; the Comptroller; the Director of Public Relations; the Dean of Men; the Dean of Women; the Administrator of the Office of Sponsored Research; the Business Manager; the Director of Personnel Services; the Administrator of the University Hospital and Clinics; the Director of Libraries; the Director of Men's Athletics; the President of the Student Council; and a student representative of Phi Beta Kappa.

COMMITTEE ON RESEARCH

Arthur Edward Burns, *Chairman*

Harold Frederick Bright

Angus MacIvor Griffin

Nelson Thomas Grisamore

Herman Hedberg Hobbs

Ralph Elliott Purcell

Martha Norman Rashid

COMMITTEE ON RESEARCH ON HUMANS

Ira Hubert Cisin, *Chairman*

John Thomas Dailey

Patrick Francis Gallagher

Nelson Mead Head

James William Hillis

Ralph Kirby White

COMMITTEE ON STUDENT FINANCIAL AID

Harry Grubb Detwiler, *Chairman*

Raymond Richard Fox

Maurice Kingsley Heartfield, Jr.

James Rudolph Roman, Jr.

George W.G. Stoner

William Lewis Turner

COMMITTEE ON FEDERAL EDUCATIONAL ALLOWANCES

Arthur Edward Burns, *Chairman*

Harold Frederick Bright

Calvin Darlington Linton

Carl Hugo Walther

Lloyd Hartman Elliott, *ex officio*

COMMITTEES ON STUDENT AFFAIRS

COMMITTEE ON STUDENT LIFE

Peter Proal Hill, <i>Chairman</i>	John Andrew Morgan, Jr.
William Byron Griffith	Margaret Nolte
John Terrill Hohman	Six Student Members
Carl Oscar McDaniels	

COMMITTEE ON THE PERFORMING ARTS

Charles William Cole, <i>Chairman</i>	George Steiner
Elizabeth Burner	Five Student Members
Donald Chenoweth Kline	

COMMITTEE ON STUDENT PUBLICATIONS

Hugh Linus LeBlanc, <i>Chairman</i>	Robert Crumpton Willson
Edward Jaffee	Donald Winkler
Douglas Harold Teller	Five Student Members

COMMITTEE ON RELIGIOUS LIFE

Robert Gean Jones, <i>Chairman</i>	Laurence Pereira Leite
John Gordon Boswell	Howard Morley Sachar
Roderic Hollett Davison	Five Student Members

THE UNIVERSITY SENATE 1967-68

Richard Chester Allen	*Calvin Darlington Linton
Seymour Alpert	Thomas Phillip George Liverman
Galip Mehmet Arkilic	*Eugene Ross Magruder
John Gordon Boswell	*Louis Harkey Mayo
Edward Howard Braun	‡Robert Eugene Park
*Harold Frederick Bright	*John Parks
*Arthur Edward Burns	Robert Carleton Parlett
Alton Harold Desmond	Theodore Peter Perros
*Lloyd Hartman Elliott	§Max Pock
*Warren Gould	John Palmer Reesing, Jr.
Raymond George Hanken	*Blake Smith Root
Robert Bernard Heller	Carol Ruth St. Cyr
*Henry William Herzog	Richard Harold Schlagel
Peter Proal Hill	#David James Sharpe
*Frederick Russell Houser	Edwin Lockwood Stevens
†Robert Wayne Kenny	Karl Ernest Stromsem
Norman Clifford Kramer	Robert Crumpton Willson
*Robert Kramer	*Reuben Esselstyn Wood
Edwin Joseph Baughman Lewis	Artley Joseph Zuchelli

* Ex officio member.

† Sabbatical leave fall semester, Charles Joseph Herber pro tempore.

‡ Fall semester only.

§ Spring semester only.

Sabbatical leave spring semester, David Earl Seidelson pro tempore.

|| Sabbatical leave fall semester, John Withrow Brewer pro tempore.

† Chairman of the Executive Committee.



GENERAL INFORMATION

Admission

THE UNIVERSITY ACCEPTS BOTH MEN AND WOMEN. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, would not be an acceptable student.

An application for admission to degree candidacy should be accompanied by a \$25 application fee.* The application fee is waived for a student applying for readmission who was registered as a degree candidate at the time of his last registration at this University and has not since registered at another institution.

Applicants are urged to submit the application form and complete credentials well in advance of the semester for which they seek admission.

Records presented become the property of the University and *cannot* be returned.

UNDERGRADUATE ADMISSION†

Forms for application for admission or readmission are available at and should be returned to the Office of Admissions, 2121 Eye Street, N.W., Washington, D. C. 20006.

SECONDARY SCHOOL STUDENTS

Regular Admission.—Applicants for regular admission who wish to begin college in the fall semester *should* apply during the fall term of the senior high school year, *and* no later than March 1. Students graduating at mid-term wishing to begin college in the spring semester *must* apply no later than December 1. Applications and all required credentials of students wishing to begin college in either the first or second term of the summer session *must* be received prior to March 1.

An applicant from a secondary school must arrange to have sent directly from his school to the Office of Admissions a complete academic record to—

* Application fee must be by check or postal money order, payable to The George Washington University.

† For detailed admission requirements, see the appropriate college or school in this Catalogue. Tests required for admission and Educational Testing Service information are described on page 64. See pages 24–25 for admission requirements for students from foreign institutions.

gether with a personal evaluation and recommendation from his principal. This information may be supplied on a form provided by the University or on a standard form used by the secondary school, provided all essential information is included.

Early Decision Plan.—For the qualified student who wants to begin college in the fall semester and receive an early guarantee of space, the University offers an early decision plan. The student need *only* indicate on the application form that he wishes an early decision and have all required credentials in the Office of Admissions prior to November 1. A decision will be mailed by December 15. The declaration of intent to attend the University and a \$200 tuition deposit (plus an additional \$200 housing deposit for resident students), nonrefundable, *must be submitted by January 15 to reserve space.*

If the applicant is accepted under the early decision plan but fails to submit the deposit by January 15, he will be reconsidered, along with all other applicants, for regular admission, as described above.

TRANSFER STUDENTS

Undergraduate transfer students from other institutions *must* submit application and required credentials prior to June 1 for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

The transfer student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

An applicant who has attended one or more institutions of higher learning must request *each* registrar to mail directly to the Office of Admissions a transcript of his record, *even though credits were not earned.*

If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of Admissions.

If an applicant has fewer than 60 semester hours of acceptable work (C or better on academic work from an accredited institution), he must request that his high school record and College Entrance Examination Board test scores be sent to the Office of Admissions.

TUITION DEPOSIT

Upon notification of acceptance, a \$100 tuition deposit (\$200 for students admitted by "Early Decision Plan," see above) will be required of all full-time undergraduate students including those readmitted. The deposit is credited toward tuition and is not refundable.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Up to 30 semester hours of credit may be granted for college-level courses in an approved secondary school, if substantiated by satisfactory performance in the appropriate Advanced Placement Examination of the College Entrance Examination Board. Arrangement for the examination is the responsibility of

the applicant and should be made with the College Board Advanced Placement Examinations, Box 977, Princeton, N.J. 08540.

Credit is assigned for examinations with scores of 4 or 5 on the basis of a score report from the Educational Testing Service. This report must be requested by the student. Examinations with grades of 3 will be given consideration for possible placement and/or credit if the student arranges to have the examination paper sent to the Office of Admissions at the University.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University. It may be allowed provisionally, and it may be withdrawn for subsequent poor work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

SERVICE SCHOOL CREDIT

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates. Veterans should submit to the Office of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate it in the *Guide to Evaluation of Educational Experience in the Armed Forces*.

GRADUATE ADMISSION*

Graduate School of Arts and Sciences.—Forms for application for admission or readmission are available at the Office of the Dean of the Graduate School of Arts and Sciences, 2000 H Street, N.W., Washington, D. C. 20006. When completed, these application forms should be submitted to this Office, together with college transcripts and letters of reference, no later than June 1 for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

School of Education.—Forms for application for admission or readmission are available at the Office of the Dean of the School of Education, 2013 G Street, N.W., Washington, D. C. 20006. When completed, these application forms should be submitted to this Office no later than July 1 for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

School of Government and Business Administration.—Forms for application for admission or readmission are available at the Office of the Admissions Officer, School of Government and Business Administration, Chapin Hall, The George Washington University, Washington, D. C. 20006. When completed, these application forms should be submitted to this Office no later than July 1 for the

* For detailed admission requirements, see the appropriate college or school in this Catalogue. See pages 24–25 for admission requirements for students from foreign institutions.

fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

School of Public and International Affairs.—Forms for application for admission or readmission are available at the Office of the Dean of the School of Public and International Affairs, Building T, 2110 G Street, N.W., The George Washington University, Washington, D.C. 20006. When completed, these application forms should be submitted to this Office no later than June 1 for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

DIVISION OF UNIVERSITY STUDENTS ADMISSION*

Forms for application for admission to *nondegree* status in the Division of University Students are available at and should be returned to the Office of Admissions, 2121 Eye Street, N.W., Washington, D. C. 20006. When completed, these application forms, with credentials when required, should be received by the Office of Admissions no later than the Friday before the first day of registration (see Calendar, pages 7–8). No application fee is charged for admission to this Division. For detailed entrance requirements, see pages 156–57.

Registration in a given course may be denied students in this Division when space is needed for degree candidates.

READMISSION

A student previously registered in the University who was not registered on campus during the immediately preceding semester (summer session excluded), must apply for readmission. Final dates for applying are the same as those for "Undergraduate Admission" (see pages 21–22), or "Graduate Admission" (see pages 23–24). If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the appropriate office at this University from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

The application fee is waived for a student applying for readmission who was registered as a degree candidate at the time of his last registration at this University and has not since registered at another institution.

STUDENTS FROM FOREIGN INSTITUTIONS†

Application, required records, and scores on the *Test of English as a Foreign Language* (see page 25) must be received from *foreign applicants* no later than March 1 for the fall semester and November 1 for the spring semester.

* See this page for admissions requirements for students from foreign institutions.

† For detailed admission requirements, see the appropriate college or school in this Catalogue. Tests required for admission and Educational Testing Service information are described on pages 64 and 156.

REQUIRED RECORDS

Applicants must request all educational institutions attended to send directly to the appropriate office (see "Undergraduate Admission," pages 21-22, or "Graduate Admission," pages 23-24) official credentials listing subjects studied, grades received, examinations taken, and degrees received. Certified copies of diplomas and certificates from secondary schools and all colleges and universities attended are required. Records of state examinations and certificates are also needed. All records become the property of the University and *cannot* be returned.

LANGUAGE TEST

Students whose native tongue is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The completed application form should be returned to the Testing Service at Princeton well in advance of the beginning of the semester for which the applicant seeks admission. A \$10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does *not* constitute application for admission to The George Washington University.

The Bulletin of Information, obtainable without charge, contains a description of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and an application blank. On the application for the test, the student should specify that the scores be sent to the appropriate office at this University (see "Undergraduate Admission," pages 21-22, or "Graduate Admission," pages 23-24).

If additional tests are prescribed, necessary instructions will be sent to the applicant.

TRANSFER WITHIN THE UNIVERSITY

For information concerning transfer from one college, school, or division to another within the University, see pages 42-43.

Registration

THE DATES, HOURS, AND PLACE OF REGISTRATION will be stated in the *Schedule of Classes*, which is available well in advance of each semester.

A student cannot register for classes until he has received a letter of admission to the University issued by the appropriate admitting office.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of

the deans concerned, *prior to registration*. Allowance of credit for work done concurrently at another institution is at the discretion of the appropriate committee.

ELIGIBILITY FOR REGISTRATION*

Registration for the following categories of campus students is held on the days of registration stated in the University Calendar. No student who is suspended or whose record is not clear for any reason is eligible to register.

New Student.—Upon receipt of a letter of admission, the new student is eligible for registration on the stated days of registration.

Readmitted Student.—A student previously registered in the University who was not registered for campus courses during the preceding semester or summer session must apply for and receive a letter of readmission from the appropriate admitting office before he is eligible for registration. A student registered for the spring semester of 1968 need not apply for readmission for the fall semester 1968–69. Such a student is a "Continuing Student."

Continuing Student.—The student registered for campus courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for the 1968 Summer Sessions campus courses, and not restricted to summer registration, is eligible to register for the 1968–69 fall semester on presentation of his 1968 Summer Sessions student identification card.

REGISTRATION CHANGES AND WITHDRAWALS (see pages 28, 30, 42)

Fees and Financial Regulations

FEES PAID BY STUDENTS cover only a portion of the cost of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the institution make up the difference.

The following fees and financial regulations were adopted for the academic year 1968–69. (See page 29 for projected tuition increases for 1969–72.)

Tuition Fees

For undergraduate study in Columbian College of Arts and Sciences, the School of Education, the School of Government and Business Administration, the School of Public and International Affairs; for study in the Division of University Students; and for courses taken on campus by undergraduate students in the College of General Studies:

Full-time program (12 to 18 hours), each semester.....	\$850.00
Part-time program or hours in excess of 18, for each semester hour.....	60.00

For graduate study† in the Graduate School of Arts and Sciences, the School of Education, the School of Government and Business Administration:

* Registration in a given course may be denied students in the Division of University Students when space is needed for degree candidates.

† Payment of tuition for a Master's thesis entitles the candidate, during the period of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, additional time may be granted in accordance with the regulations of the school in which the student is registered.

tion, and the School of Public and International Affairs; and for courses taken on campus by graduate students in the College of General Studies (Exception: doctoral students registered prior to July 1, 1967, who wish to continue payments according to the plan (see below) in effect prior to that date):

For each semester hour for which a student registers..... \$60.00

Doctoral students not enrolled under the payment plan in effect before July 1, 1967, are required to register for minimum hour-loads,* as follows:

1. Full-time doctoral students must register for a minimum of 12 semester hours a semester until 24 hours have been completed beyond the general examination (Doctor of Business Administration, Doctor of Philosophy, Doctor of Public Administration) or until 12 to 24 hours have been completed beyond the major field examination (Doctor of Education); and for a minimum of 4 semester hours a semester thereafter until the satisfactory completion of the final examination.
2. Part-time doctoral students must register for a minimum of 6 semester hours a semester until 24 hours of work have been completed beyond the general examination (Doctor of Business Administration, Doctor of Philosophy, Doctor of Public Administration) or until 12 to 24 hours have been completed beyond the major field examination (Doctor of Education); and for a minimum of 4 semester hours a semester thereafter until the satisfactory completion of the final examination.

For students registered for doctoral degree† in the Graduate Council (now the Graduate School of Arts and Sciences) and the School of Government and Business Administration prior to July 1, 1967, who wish to continue payments according to the plan in effect prior to that date:

For work leading to and including the general examination..... 1,700.00
For work leading to and including the final examination..... 1,700.00

For students registered for the Doctor of Education degree‡ prior to July 1, 1967, who wish to continue payments according to the plan in effect prior to that date:

For work leading to and including the major field examination..... 2,125.00
For work leading to and including the final examination..... 1,275.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be defrayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee

* No minimum hour-load is required during the summer sessions.

† The tuition fee is to be paid at the rate of \$425.00 a semester or in full at the beginning of each stage of the doctoral discipline. No "continuous registration" fee will be charged if a third year is needed for completion of either part of the degree requirements. If still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

‡ As long as there is an unpaid balance for the part of the program on which the student is working, he must make at least the minimum tuition payment of \$212.50 at each fall and spring registration (and for any summer session in which he registers for academic work).

If the total fee is paid for the part of the program on which the student is working, he may continue to register, without additional fee, for courses approved by his Master in Research, until the expiration of the time allowed for that part of his program.

the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts.....	\$10.00
Bachelor's, Master's, Education Specialist, Doctor's degrees.....	25.00
Certificate of the Institute for Sino-Soviet Studies, Graduate Certificate in Health Care Administration.....	25.00
Fee for Binding Master's Thesis.....	10.00
Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation.....	55.00
Residence Hall Fees (see page 51)	

Special Fees

Application fee (degree candidate), nonrefundable.....	25.00
Tuition deposit, nonrefundable:	
Charged each entering or readmitted full-time undergraduate student, except early decision freshmen.....	100.00
Charged each freshman admitted by the early decision plan.....	200.00
Application for room reservation, nonrefundable:	
Charged each resident student except early decision freshmen.....	100.00
Charged each student admitted by the early decision plan.....	200.00
Admission tests (when required).....	6.00-12.00
National Teacher Examinations fee, for Bachelor of Arts in Education degree candidates	9.00-13.00
Late-registration fee, for failure to register within the designated period....	15.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course.....	2.00
Withdrawal fee, charged in special cases.....	5.00
Service fee, for deferred payment plan (see "Payment of Fees," page 29)	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
Continuous Registration fee, to maintain "continuous registration" status during any semester of absence from the University or after completion of tuition requirements*—due and payable on the official days of registration	60.00
For special physical examination.....	2.00
For each examination to qualify for advanced standing and for each special examination	5.00
English test for foreign students (when required).....	5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the date deadline set by the instructor†.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Student Career Services Office; (2) the use of the University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*.

* Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither tuition fee nor residence requirements for the degree.

This fee does not apply to students granted military leave, see page 44.

† A student who drops a chemistry course before the end of the semester must check out of the laboratory at the next regular laboratory period.

the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate when the student withdraws or is dismissed from the University.

PROJECTED TUITION INCREASES 1969-72

In order that students and their parents may plan more realistically for a total four-year period, tuition increases for the academic years 1969-70, 1970-71, and 1971-72 have been estimated as follows:

Increase by year (full-time undergraduate students):	
1969-70	\$100.00
1970-71	100.00
1971-72	100.00
Increase by semester hour (graduate and part-time undergraduate students):	
1969-70	4.00
1970-71	4.00
1971-72	4.00

It is not possible to project future economic data with certainty. Barring a severe change in the national economy, however, the above listed tuition schedule will be followed.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier. Checks and postal money orders should be made out to The George Washington University. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

The Student Accounts Office has responsibility for creating, billing, and maintaining student accounts resulting from tuition and room and board charges. A student registered for six semester hours or more may sign a contract with this Office at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 6, 1968 (for the fall semester) and March 19, 1969 (for the spring semester). A service fee of \$5 will be charged for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance, of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 reinstatement fee and have been officially reinstated by the Student Accounts Office.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Student Accounts Office.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Exchange Bank in Philadelphia, Pennsylvania;

Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple-year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of Student Financial Aid.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice (see "Withdrawal," page 42).

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

FALL SEMESTER

Withdrawal dated on or before September 27, 1968.....	90 per cent
Withdrawal dated September 30 to October 11, 1968.....	75 per cent
Withdrawal dated October 14 to October 25, 1968.....	50 per cent
Withdrawal dated after October 25, 1968.....	none

SPRING SEMESTER

Withdrawal dated on or before February 7, 1969.....	90 per cent
Withdrawal dated February 10 to February 21, 1969.....	75 per cent
Withdrawal dated February 24 to March 7, 1969.....	50 per cent
Withdrawal dated after March 7, 1969.....	none

2. For a change in status from full-time to part-time student or for partial withdrawal by a part-time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.
3. A student enrolled in a full-time program who drops or adds a course and continues to be in a full-time program will have no financial adjustments of tuition made other than those involving course fees.
4. A student who is granted military leave before completing a semester is given credit for all tuition paid for that semester, for use upon his return to the University. No tuition will be refunded to a student granted military leave (see "Military Leave," page 44).

In no case will tuition be reduced or refunded because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Financial Aid

FOR UNDERGRADUATE STUDENTS*

THE GEORGE WASHINGTON UNIVERSITY has a program of financial assistance for undergraduate students of scholarships, loans, grants, part-time employment, or any combination of these resources. The University participates in the National Defense Student Loan, Educational Opportunity Grant, and College Work-Study programs. Financial aid is awarded on the basis of the student's scholastic record, financial need, and qualities of leadership and character.

Scholarships are awarded for the academic year.

Applications and supporting credentials for financial aid must be filed by February 1 (entering freshmen), March 1 (enrolled undergraduate or entering transfer students) preceding the academic year of the award for the fall semester; by October 31, for the spring semester; and by May 1, for the summer session†.

An undergraduate transfer student is not eligible for scholarship funds until the academic year following completion of one full semester (15 hours) at this University with a minimum average of *B* (3.00). A transfer student is, however, immediately eligible for other types of financial aid.

Complete information concerning financial assistance is contained in the pamphlet "Student Financial Aid," which is available at the Office of Student Financial Aid, The George Washington University, Washington, D. C. 20006.

The following scholarships are available to students in Columbian College of Arts and Sciences, the Graduate School of Arts and Sciences, the School of Education, the School of Government and Business Administration, and the School of Public and International Affairs. The University also offers many other scholarships which are available to students in these colleges and schools.

The George Washington University Board of Trustees Scholarships.—Full- and partial-tuition scholarships, which will begin in the fall semester and extend for four successive academic years, provided the holder maintains a *B* average, as well as a high standard of deportment, and continues to be in financial need. Candidates must plan to select a curriculum leading to a Bachelor's degree in any school of the University except the College of General Studies. Students who have demonstrated outstanding ability in interscholastic speech and debate activities are eligible for the Board of Trustees Scholarships in Debate; the "George F. Henigan Scholarship in Debate" is included among these scholarships.

Alumni Scholarships

American Society of Women Accountants Scholarship (1953)

Byron Andrews Scholarship (1920)

Beta Sigma Phi Scholarship (1962)

Henry N. Bawner, Jr., Foundation Scholarship Fund (1963)

Emma K. Carr Scholarships (1932)

* For information concerning financial aid for students from foreign countries, see pages 35-36.
† A Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least 8 semester hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

- Maria M. Carter Scholarship (1871)*
Chi Omega Alumni Scholarship (1966)
Colortone Graphic Arts and Publications Scholarship (1961)
Columbian Women Scholarship Funds
 Victoria Briggs Scholarship Fund (1959)
 Elizabeth V. Brown Scholarship Fund (1925)
 Grace Ross Chamberlin Scholarship Fund (1932)
 College Women's Scholarship Fund (1926)
 Columbian Women Members' Scholarship Fund (1961)
 Arline Hughes Dufour Scholarship Fund (1961)
 Dr. Watson W. Eldridge, Jr., and John F. Eldridge Scholarship Fund (1964)
 Founders of Columbian Women Scholarship Fund (1920)
 Rose Lees Hardy Foundation Scholarship Fund (1957)
 Lillian Young Herron Scholarship Fund (1925)
 Nellie Maynard Knapp Scholarship Fund (1915)
 Marcia B. Kraft Scholarship Fund (1966)
 Janet McWilliams Scholarship Fund (1954)
 Marie-Louise Ralph Turner Scholarship Fund (1963)
Daughters of the American Revolution Scholarship (1952)
Isaac Davis Scholarship (1869)
Debate Scholarships
 District of Columbia Institute of Public Accountants Scholarship (1964)
 Estella Constance Drane Scholarship (1957)
 Robert Farnham Scholarship (1871)
 Federal Government Accountants Association of Washington, D. C., Scholarship
 Esther Brigham Fisher Scholarship (1951)
 General Motors College Scholarship (1955)
 Georgetown Business and Professional Woman's Club Scholarship (1958)
 Giant Food, Inc., Scholarship Intern Program
 Mildred Green Memorial Scholarship Fund (1959)
 Anna Spicker Hampel Scholarship (1949)
 Elma Lewis Harvey Scholarship (1921)
 Hazleton Scholarship (1950)
 George F. Henigan Scholarship in Debate (1967)
 Jewish War Veterans' Auxiliary Scholarship (1964)
 Amos Kendall Scholarship (1869)
 Eugene and Agnes E. Meyer Scholarships (1952)
 Mitchell-Stancioff Scholarship
 A. Morehouse Scholarship (1861)
 Helen Marie and Thomas E. Orr Scholarships (1965)
 Levin M. Powell Scholarships (1886)
 Phi Delta Gamma Scholarship (1956)
 Research Assistantships in Data Processing and Related Fields (see page 33)
 Violet B. Robinson Scholarship Fund (1966)
 Henry Whitefield Samson Scholarship Fund (1966)
 Lula M. Shepard Scholarships (1946)
 Sigma Delta Chi Foundation of Washington, D. C., Scholarships
 Julian Singman Art Scholarship (1963)
 David Spencer Scholarship (1918)
 Mary Lowell Stone Scholarship (1893)
 Charles Clinton Swisher Scholarships (1941)

Tau Kappa Epsilon Scholarship (1959)
U. S. Office of Education Traineeships (1964)
University Hospital Scholarships in Medical Technology
University Women's Club, Inc., Memorial Fund Scholarship (1967)
William Walker Scholarship (1824)
Abigail Ann Brown White and Henry Kirk White Scholarship Fund (1963)
John Withington Scholarship (1830)
Women's Physical Education Alumnae Association Scholarship (1964)
Ellen Woodhull Scholarship (1919)
Zonta Club Scholarship (1950)

FOR GRADUATE STUDENTS*

The George Washington University program of financial assistance for graduate students includes assistantships, fellowships, traineeships, graduate scholarships, research appointments, and loans. Application for admission to graduate study is a prerequisite for consideration. The University participates in the National Defense Student Loan and College Work-Study programs.

Application and correspondence concerning assistantships, fellowships, traineeships, or graduate scholarships should be sent directly to the dean of the school concerned, and addressed to The George Washington University, Washington, D.C. 20006. Unless otherwise specified, application and supporting credentials should be submitted not later than March 1 preceding the period for which the award is made.

A separate application for National Defense Student Loans or the College Work-Study Program must be submitted to the Office of Student Financial Aid by April 1 for the following academic year.

ASSISTANTSHIPS

Graduate Teaching Assistantships and/or Graduate Research Assistantships. Available to first- and second-year graduate students. Each graduate assistant renders a designated unit of service to his major department of instruction and receives a stipend of up to \$2,800 (on a 9-month basis), plus tuition and course fees.

Research Assistantships in Data Processing and Related Fields.—Available to graduates, and to undergraduates on the junior and senior levels, in any school of the University. Research Assistants are expected to work 20 hours a week conducting research in support of an established research program, in programming, or in conducting individual research on an approved research project. Stipends vary from \$3,124 to \$6,449, depending on the status of the student and the tenure of the appointment (9–12 months). Further information and applications are available from the Administrator, Logistics Research Project, Staughton Hall, 707 Twenty-second Street, N.W., Washington, D.C. 20037.

Resident Assistantships (men and women) and Positions of Director and Assistant Director (men).—Available to graduate students in any field of study who are interested in working with the student personnel program in University

* For information concerning financial aid for students from foreign countries, see pages 35–36.

residence halls. Specific duties vary with the position, but basically consist of counseling, advising student groups, and administration. Remuneration varies according to the responsibilities and demands of the position. All positions are part-time, enabling staff members to enroll as full-time students. Application should be completed before March 15. Further information may be obtained from the Office of the Dean of Men or the Office of the Dean of Women.

National League of Cities-George Washington University Assistantships.

FELLOWSHIPS

The following fellowships are available to students in the Graduate School of Arts and Sciences, the School of Education, the School of Government and Business Administration, and the School of Public and International Affairs. The University also offers many other fellowships which are available to students in these colleges and schools.

Complete information concerning fellowships is contained in the pamphlet "Student Financial Aid," which is available at the Office of Student Financial Aid, The George Washington University, Washington, D.C. 20006.

University Teaching Fellowships.—Available to prospective doctoral candidates in departments offering doctoral study; assigned for the academic year. Each teaching fellow is responsible for a specific instruction assignment and receives a stipend of up to \$2,800 (on a 9-month basis), plus tuition and course fees. Awards are renewable for a second year.

American Thought and Culture Fellowship

American Thought and Culture Internships (Smithsonian Institution-George Washington University Cooperative Program)

Arlington County-George Washington University Cooperative Program

Winfield Scott Blaney Fellowship in International Affairs (1961)

Thomas Alva Edison Fellowship

W.K. Kellogg Foundation Fellowships (1964)

Isabella Osborn King Research Fellowships (1927)

National Aeronautics and Space Administration Predoctoral Traineeships

National Defense Education Act Fellowships

National Endowment for the Humanities Fellowships

National Historical Publications Commission-George Washington University

Cooperative Research Fellowships

National Science Foundation Graduate Traineeships

Thomas Bradford Sanders Fellowships (1928)

Scottish Rite Fellowships

U.S. Office of Education Fellowships (1964)

U.S. Public Health Service Predoctoral Fellowships

U.S. Public Health Service Traineeships

GRADUATE SCHOLARSHIPS

Gamma Phi Beta Sorority Scholarships (1962)

M.A.T. Program in Elementary Education (1963)

Mitchell-Stancioff Scholarship

Wolcott Foundation Scholarships

SPONSORED AWARDS FOR GRADUATE STUDY

General information regarding awards sponsored by foundations, government agencies, professional and learned societies, industries, and others which may be used in support of graduate study is available at the Graduate School of Arts and Sciences for students enrolled at The George Washington University. Such scholarships and fellowships include the Rhodes, Marshall, Woodrow Wilson, Fulbright, Rotary International, and Danforth.

As deadlines for application vary, qualified students should make inquiries well in advance of the year of planned graduate study.

LOAN FUNDS

The following loan funds are available to undergraduate and/or graduate students in Columbian College of Arts and Sciences, the Graduate School of Arts and Sciences, the School of Education, the School of Government and Business Administration, and the School of Public and International Affairs. Complete information is contained in the pamphlet "Student Financial Aid," which is available in the Office of Student Financial Aid, The George Washington University, Washington, D.C. 20006.

American Medical Association Nursing Home Administration Loan Fund

W.K. Kellogg Foundation Hospital Administration Loan Fund

Long-term Care Loan Fund

Jessie B. Martin Loan Fund

National Defense Education Act Student Loan Program

Senior Women's Loan Fund

State Guaranteed Loan Program

Ellis Stearman Emergency Loan Fund

U.S. Loan Fund for Cuban Students

United Student Aid Fund Loan

STUDENT EMPLOYMENT

The Student and Alumni Career Services Office maintains a registry of both full-time and part-time positions available in the Washington area for undergraduate and graduate students.

After registration, interested students may apply at the Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., for interviews and referrals to positions for which they are qualified.

FOREIGN STUDENTS

The University has no scholarships available to foreign students, graduate or undergraduate. Loan funds are limited in amount and are available only to citizens of the United States or to those foreign-born persons who have established resident status in the United States through the Immigration and Naturalization Service.

Limited awards for graduate assistantships and/or fellowships are the responsibility of the chairman of the department or dean of the school in which the degree is to be earned. Work as an assistant requires excellent knowledge of English—both spoken and written.

Students who wish to study in the United States should have available sufficient funds to cover expenses for a year. The current cost at this University for one academic year (9 months, September through May) is approximately \$3,700. This estimate includes room and board, tuition, books, and incidental expenses; no travel, clothing, holiday, or medical expenses are included in this figure.

The Institute of International Education, 809 United Nations Plaza, New York, N.Y. 10017, U.S.A., will provide information on International Study Grants.

Prizes

Alpha Chi Sigma Prizes.—A *Handbook on Chemistry and Physics* awarded annually by Alpha Pi Chapter to each of three students who carry at least 18 semester hours during the freshman year and attain the highest averages in freshman chemistry.

The name and year of graduation of the student who has attained the highest quality-point index in courses in chemistry is inscribed on a bronze plaque. The winner must have had at least 16 hours in chemistry including the final semester at this University.

Alpha Delta Pi Prize.—Offered annually by Alpha Pi Chapter to the woman in the junior class with the most outstanding record in scholarship, extracurricular activities, and service to the University.

Alpha Kappa Psi Prize.—A key, awarded annually by Beta Mu Chapter to the male student who has completed 90 semester hours at this University and attained the highest average grade in business administration, economics, international business, public accounting, and public finance. The name of the winner and the year of the award is engraved on a plaque in the Office of the Dean of the School of Government and Business Administration.

American Institute of Chemists Prize.—A medal and a one-year subscription to *The Chemist* awarded annually to the graduating student majoring in chemistry who excels in scholarship, integrity, and leadership.

Colonel Walter G. Bryte, Jr., Leadership Trophy and Prize.—A prize awarded to the elected leader of that undergraduate organization, fraternity, or other activity consisting of at least fifteen students which has shown the most improvement or excellence in its support of the principles and aims of the United States of America and The George Washington University. The name of the organization shall be engraved on a silver trophy. Colonel Bryte, USAF (Ret.), first Professor of Air Science at the University, has provided this prize and trophy.

Byrne Thurtell Burns Memorial Prize.—Awarded to the senior majoring in chemistry who shows the greatest proficiency in organic chemistry, as evidenced by a comprehensive examination, and who possesses such qualifications of mind, character, and personality as to give promise of future achievement.

Wilbur J. Carr Prize.—Established in 1962 by Edith K. Carr, former Trustee of the University, in memory of her distinguished husband, who was graduated from the School of Comparative Jurisprudence and Diplomacy in 1899. It is awarded annually to that man in the graduating class of the University who has demonstrated outstanding ability in his study of international affairs and who has given evidence of possessing in marked degree the qualities which produce the good citizen and the dedicated public servant.

Chi Omega Prize.—Awarded annually by Phi Alpha Chapter to the woman in the graduating class with the highest record in economics, sociology, political science, and history; combined with general excellence.

The Columbian Women Prize.—Awarded to the senior woman who in her undergraduate life has most nearly fulfilled the objectives of Columbian Women.

Ernest Connolly Memorial Award.—Awarded by the Washington Personnel Association to an outstanding graduating senior in business administration who shows general excellence in studies, demonstrates superiority in one or more courses in personnel administration, and shows qualities of leadership or promise through extra-scholastic activities.

John Henry Cowles Prizes.—Two prizes, established by John H. Cowles, Grand Commander of the Supreme Council of Thirty-third Degree (Mother Council of the World) of the Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction of the United States of America. Awarded annually to the senior in the School of Government and Business Administration and to the senior in the School of Public and International Affairs with the highest academic averages.

DeWitt Clinton Croissant Prize.—Awarded annually to the undergraduate student enrolled in a course in drama or active in University dramatics who submits to the English Department the best essay on drama or the theater.

E. K. Cutter Prize.—Established by Marion Kendall Cutter "for excellence in the study of English." Awarded to the member of the graduating class whose record in English, combined with general excellence, shows most marked aptitude for and attainment in English studies.

Isaac Davis Prizes.—Awarded annually to the three seniors who made the greatest progress in public speaking while enrolled in the University. Awards are to be determined by a public-speaking contest in which the participants deliver original orations. Only members of the senior class of Columbian College of Arts and Sciences who are candidates for the degree of Bachelor of Arts or Bachelor of Science are eligible to compete.

Delta Gamma Prize.—Awarded annually by Beta Rho Chapter to the woman who, at the end of her freshman year, has the most outstanding record in scholarship, extracurricular activities, and service to the University.

Delta Zeta Prize.—Awarded annually to a full-time lower-division student for excellence in Biological Sciences 2.

Henry Grattan Doyle Memorial Prize.—Established in memory of Henry Grattan Doyle, a former Dean of Columbian College, and awarded annually to an outstanding senior student for excellence in Spanish.

Elton Prize.—Established by the Reverend Romeo Elton, of Exeter, England, and awarded annually to the student with the highest average in the most advanced course in the Greek language and literature.

Jesse Frederick Essary Prize in Journalism.—Established by Helen Essary Murphy and awarded annually to a student who has given promise of sound citizenship and who submits the best printed and published evidence of ability

in "forthright reporting" and good journalistic writing, in a student publication or elsewhere.

Joshua Evans III Prize in Political and Social Sciences.—A memorial prize "established by friends because of an outstanding life." Awarded annually to that man in the graduating class "who has demonstrated his signal ability in the social and political sciences and who has given promise of the interpretation of that ability in good citizenship among his fellows."

Willie E. Fitch Prize.—Established by James E. Fitch in memory of his son. Awarded annually to a senior student for the best examination in chemistry.

Alice Douglas Goddard Prize.—A memorial established by Frederick Joseph Goddard, of Georgetown, D. C. Awarded annually to the upper-division student making the highest average in American literature.

Edward Carrington Goddard Prize.—Established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C., in memory of Edward Carrington Goddard, class of '81. Awarded to the junior or senior student making the highest average in the French language and literature.

Morgan Richardson Goddard Prize.—A memorial established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C. Awarded to the junior or senior student making the highest average in the following fields: business administration, economics, international business, and public accounting.

Gardiner G. Hubbard Memorial Prize in United States History.—Established by Gertrude M. Hubbard in memory of her husband and awarded annually to that member of the graduating class majoring in history who has maintained the highest standing in courses in United States history.

Kappa Kappa Gamma Prize.—Awarded annually to a full-time lower-division student for excellence in Biological Sciences I.

Craig Sterling Logan Memorial Prize.—Established by Washington City Rho Chapter of Sigma Alpha Epsilon. A plaque awarded annually to an outstanding freshman man of high academic achievement who has participated in extracurricular activities for the betterment of the University.

Mortar Board Prize.—A silver cup awarded annually to the woman student in the sophomore class having an average of *B* or higher and the most outstanding record in activities.

Vivian Nellis Memorial Prize.—Awarded to a student in the English Department who has shown special promise in the field of creative writing.

Old Men Prize.—A plaque awarded annually by the Old Men Board to a man in the junior class who has made outstanding contributions to student activities.

Omicron Delta Kappa Prize.—A plaque awarded annually by Alpha Delta Circle to "that member of the senior class who throughout his course has done the most constructive work in the furtherance and upbuilding of the University student activities."

Order of Scarlet Prize.—Awarded annually by the Board of Governors of Order of Scarlet to that member of the sophomore class who has the most outstanding record in extracurricular activities and service to the University.

Panhellenic Association of Washington, D.C., Prize.—A trophy to be awarded to the Panhellenic Sorority maintaining the highest yearly scholastic average at the University for the previous year.

Phi Delta Kappa Prize.—Awarded annually by Beta Gamma Chapter to the outstanding senior man in the teacher education program in the School of Education.

Phi Eta Sigma Prize.—A choice book selected from the field of the recipient's major, awarded annually by The George Washington University Chapter to the male student attaining the highest scholastic average in his first full semester of work. The winner's name is engraved on a plaque in the Office of the Dean of Columbian College of Arts and Sciences.

Pi Beta Phi Prize.—Awarded annually by the District of Columbia Alpha Chapter to the woman member of the senior class who throughout her college course has done the most constructive work in the promotion of student activities among the women of the University.

Pi Lambda Theta Prize.—Awarded annually by Alpha Theta Chapter to the outstanding senior woman in the teacher education program in the School of Education.

Psi Chi Prizes.—Two prizes awarded annually by The George Washington University Chapter to the best undergraduate student in experimental psychology and to the graduate student submitting the best Master's thesis in psychology.

Ruggles Prize.—Established by Professor William Ruggles, awarded annually to a candidate for a Bachelor's degree, for excellence in mathematics.

Hermann and Johanna Richter Schoenfeld Prize.—Established in grateful appreciation of the inspired teaching and devotion to his students of Dr. Hermann Schoenfeld, who for more than 20 years until his death in 1926 headed the Department of German. Hermann Schoenfeld, Ph.D., LL.D., was widely recognized as a scholar of distinction whose service on the faculty added prestige to the University. This prize is given annually to a member of the graduating class for excellence in the historical and cultural phases of German studies.

Sigma Kappa Prize.—Awarded annually by Zeta Chapter to the student with the highest grade in the final examination in General Chemistry.

Smith, Kline and French Prize.—Awarded annually to the student who submits the best undergraduate research project in psychology.

Society of Colonial Wars in the District of Columbia Prize.—A gold medal awarded to a candidate for a graduate degree who, in the judgment of the Faculty of the Department of History, submits a thesis or dissertation demonstrating excellence in historical research in American Colonial history. The University reserves the right to withhold the award if no thesis or dissertation attaining the required degree of excellence is submitted.

Staughton Prize.—Established by the Reverend Romeo Elton and awarded annually to the student making the best record in the most advanced course in the Latin language and literature.

James MacBride Sterrett, Jr., Prize.—Established by Professor Sterrett in memory of his son. A copy of the *American Institute of Physics Handbook*, awarded annually to the student who obtains the highest average in Physics 1 and 2 or 1 and 30.

Charles Clinton Swisher Historical Club Prize.—Established by the Charles Clinton Swisher Historical Club and augmented in 1941 by the bequest of Professor Swisher. Awarded annually to the student who submits the best essay covering some phase of medieval history.

Thomas F. Walsh Prize.—Awarded annually to the student who submits the best essay in Irish history.

Alexander Wilbourne Weddell Prize.—Established by Virginia Chase Weddell in memory of her husband. Awarded annually to a candidate for a degree who writes the best essay on the subject of "the promotion of peace among the nations of the world." The prize essays shall become the property of the University and shall not be printed or published without the written consent of the University. The University reserves the right to withhold the award if no essay attaining the required degree of excellence is submitted.

Regulations

A STUDENT ENROLLED in the University is required to conform to the following University regulations and to comply with the rules and regulations of the college, school, or division in which he is registered.

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled. If such falsification is discovered after the student has established an academic record at the University, he may be subject to dismissal from the University. Such a student will be ineligible (except by special action of the Faculty) for subsequent registration in the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

SCHOLARSHIP REQUIREMENTS

A student who fails to maintain the scholarship requirements of the college, school, or division in which he is registered may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *NC*, no credit; *CR*, credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete

cannot be removed by repeating the course. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate.—For graduate work, grades are indicated as *A, B, C, F* (for definition of these grades see the appropriate college, school, or division); *I*, incomplete; *CR*, credit.

THE QUALITY-POINT INDEX

Scholarship is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on his record in this University. (Grades recorded for Physical Education 5 or 6 are not considered in computing the quality-point index.) Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W, I, NC*, or *CR* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

CREDIT/NO CREDIT OPTION

A junior or senior student in the Upper Division of Columbian College of Arts and Sciences, the School of Education, the School of Government and Business Administration, or the School of Public and International Affairs, who has a cumulative quality-point index of 2.50 or better, may, with the approval of his adviser and dean, take one course a semester and receive a grade of *CR*, credit, or *NC*, no credit, which will be recorded on the student's transcript but will not be reflected in his quality-point index. No student will be allowed to take more than 4 credit/no credit courses. A student must sign up for such an option at registration. Under no circumstances may a student change from credit/no credit status to graded status, or vice versa, after the end of registration. Courses required in the Lower Division curriculum of Columbian College of Arts and Sciences and those required in the student's major field may not be taken on the credit/no credit basis. A transfer student may not choose this option until the second semester of his enrollment at The George Washington University.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

ACADEMIC DISHONESTY

Academic dishonesty on the part of any student will result in a disciplinary grade of *F* for the course involved and also may, upon the recommendation of the appropriate dean's council, result in his suspension from the University for

a stated period, at the end of which time he may petition for readmission. The disciplinary grade of "Failure—Academic Dishonesty" will be recorded for the course involved, and this grade will be employed in the computation of the quality-point index. A student so suspended shall be withdrawn from all other courses except those in which all work has been completed.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the dean of the college, school, or division in which the student is registered. Permission to withdraw from the University will not be granted a student who does not have a clear financial record (see page 30).

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

CHANGES IN PROGRAM OF STUDIES

Changes within a College, School, or Division.—A student may not substitute one course for another, drop courses (see "Withdrawal," above), change his status from credit to audit or audit to credit without the approval of the dean of the college, school, or division in which he is registered.

Change from one section to another of the same course may be made with the approval of the dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University.—Except in cases of normal progression from the lower division of Columbian College of Arts and Sciences in a regular baccalaureate program, application for transfer to another college, school, or division must be made to the appropriate admitting office on the form provided by that office and must be approved by the deans concerned. Application for transfer from the lower division of Columbian College to the upper division or to Bachelor's candidacy in the School of Education, the School of Government and Business Administration, or the School of Public and International Affairs must be made on the appropriate form. This form is available in the Office of the Dean of Columbian College or in the Office of the Registrar.

A maximum of 45 semester hours earned in the Division of University Students can be applied toward a Bachelor's degree in a degree-granting college or school of the University. Work done in the Division of University Students will not be counted toward a graduate degree unless prior written approval, obtained from the relevant degree-granting college or school, has been filed in the Office of the Dean of the Division of University Students (see page 158).

Students transferring within the University are advised to study carefully the graduation requirements on pages 44–45 and to note that in all undergraduate

* The University work week is Monday through Friday, inclusive.

divisions, except the lower division of Columbian College of Arts and Sciences, 30 semester hours, including at least *12 semester hours* in the major field, must be completed while registered in the school or college from which the degree is sought. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill. (For residence requirements in the lower division of Columbian College of Arts and Sciences, see pages 69 and 74-75.)

CREDIT

Credit is given only after registration for a course and satisfactory completion of the required work, or upon the assignment of advanced standing in accordance with the regulations of the several colleges, schools, and divisions.

Auditing.—In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not repeat it later for credit.

BALANCE SHEET

On request, the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet is issued only if the student changes major or degree objectives.

TRANSCRIPTS OF RECORD

Official transcripts of student records are issued on request of the student or former student who has a clear financial record. A fee of one dollar is charged for each transcript.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school at another institution and apply credit so earned toward graduation from this University must first secure the written approval of his dean. In no event will credit in excess of what might be earned in a similar period in this University be recognized.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration (including the thesis) must maintain continuous registration by paying the "continuous registration" fee (see page 28). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," page 24). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

MILITARY LEAVE

A student called to active duty may be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University well in advance of the semester in which he expects to return. If a student is granted military leave before he completes a semester for which he has paid all or part of his tuition, this payment will be credited to his account for use upon his return to the University. In no case will tuition be refunded to a student granted military leave.

GRADUATION REQUIREMENTS

Degrees are conferred in February, June, and September.

To be recommended by the Faculty for graduation a student must have met the admission requirements of the college or school in which he is registered; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of a degree.

Application for Graduation.—An "Application for Graduation" form must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior or final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

Scholarship.—In all undergraduate divisions of the University a quality-point index of at least 2.00 is required for graduation.

The graduate student must meet the scholarship requirements for the particular degree for which he is registered.

Curriculum.—Minimum curriculum requirements for each degree are stated under the college or school offering work in preparation for the degree.

Residence.—Unless otherwise specified, in all undergraduate divisions of the University, a minimum of 30 semester hours, including at least 12 hours in the major field, must be completed while registered in the school or college from which the degree is sought. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted toward the residence requirement, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the dean of the college or school concerned to pursue work elsewhere, the work of the senior or final year must be completed in the college or school from which the degree is sought.

The graduate student must meet the residence requirements for the particular degree for which he is registered.

National Teacher Examinations.—All candidates for the degree of Bachelor of Arts in Education are required to take the National Teacher Examinations.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a degree must be presented in its final form to the Dean of the college or school concerned no later than the date specified in the University calendar.

Accepted theses and dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the appropriate dean. See the appropriate college or school in this catalogue for regulations governing theses and dissertations.

HONORS

With distinction.—In all undergraduate divisions of the University the degree may be conferred "with distinction," at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible, a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—Special honors may be awarded by the Faculty to any member of the graduating class for outstanding achievement in the student's major field on recommendation of the major department.

The student must (1) have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year, (2) meet such other conditions as may be set at the time his candidacy is approved, (3) maintain a quality-point index of at least 3.00 on all work taken at this institution, and (4) have completed at this institution at least one-half of the work required for the degree.

THE LIBRARY

All students registered in the University have the privilege of using the University Library. Its stacks are open, and all students are welcome to browse at their leisure. The Student Identification Card, issued upon the payment of fees, must be presented when books are borrowed for outside use.

The loan period for most books available for outside circulation is 30 days, nonrenewable except for graduate students. A fine of 25 cents is charged for each day a book is overdue. Any book which circulates is subject to recall by the Library at any time if needed for reserve or other use. Reserve books must be used in the reserve reading room when the Library is open, except that they may be withdrawn for overnight use beginning at 8:30 p.m. A fine of 50 cents is charged for each hour or fraction thereof that a reserve book is overdue. Grades of a student are withheld until his library record is clear.

All students using the University Library are expected to be familiar with its detailed regulations, printed in the *Student Handbook* and available separately on application to any of the Library's service desks.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property. A "Lost and Found" Office is maintained in the Student Union.

Cooperative Programs

CONSORTIUM OF UNIVERSITIES OF THE WASHINGTON METROPOLITAN AREA, INC.

FIVE UNIVERSITIES in Washington, D. C.—The American University, The Catholic University of America, *The George Washington University*, Georgetown University, and Howard University—have formed a Consortium through which they are coordinating the use of their respective facilities. As the arrangement develops, juniors, seniors, and graduate students in approved programs leading to degrees in any one of the universities will increasingly have the opportunity to select from the combined offerings of all five universities the particular courses which best meet their needs.

Participation is limited to campus degree candidates. The following, however, are excluded: freshman and sophomore students, and students in Canon Law, Dentistry, Medicine, Nursing, Social Work, and Theology. Law students are also excluded from participation, except for candidates for the degree of Master of Laws at The George Washington University and Georgetown University.

Special courses, such as private instruction (as in music or art) or tutorial study and courses in preparation for passing the language requirement, are excluded from the Consortium program.

Students are encouraged to study the announcements of programs of all five universities. In order to participate in the Consortium program, the graduate student must obtain the approval of his adviser; the undergraduate student must obtain the approval of his dean. *A student may audit, but may not take for credit, courses at another university that are available at his own.*

Registration forms and instructions are available from the registrar of the student's university. The student registers and pays at his own university for all Consortium courses.

Specific inquiries should be addressed to the Registrar.

AIR FORCE RESERVE OFFICERS' TRAINING CORPS (AFROTC)

The Department of Aerospace Studies at Catholic University of America, under provisions of an agreement between The George Washington University and Catholic University, offers a two-year AFROTC program.

The successful completion of the program qualifies the student for a reserve commission in the United States Air Force upon graduation. Exceptionally

well-qualified students may receive a Regular Officer appointment. The program is designed to provide education that will develop skills and attitudes vital to the career professional Air Force Officer. Emphasis is placed on qualities of leadership and other attributes essential to progressive advancement into positions of increasing responsibility as commissioned officers in the Air Force.

Full-time students who have two years remaining toward a baccalaureate or graduate degree are eligible to enter the program. Each student must meet physical and mental standards set by the Air Force. Candidates must complete six weeks of Field Training, conducted by the Air Force at designated bases, during the summer preceding enrollment into the program. A student must have and maintain a quality-point index of 2.00 or its equivalent. Applications must be made *early* in the academic year prior to the one of enrollment in the program, so that all qualification criteria may be met in time for selection consideration in the spring.

The program is offered at Catholic University. At the time of enrollment, a registration fee must be paid. There is no tuition charge. Students in the program receive a monthly retainer fee of \$50. Uniforms and textbooks are furnished without cost. Students participating in the Field Training phase are paid at a rate established by the U.S. Government (approximately \$120 a month) and are also furnished travel to and from the Field Training base.

Interested students should consult the Department of Aerospace Studies, Catholic University of America, Washington, D.C. 20017.

The Speech and Hearing Clinic

Acting Director J.W. Hillis

THE SPEECH AND HEARING CLINIC, Suite 804, Joseph Henry Building, 2100 Pennsylvania Avenue, N.W., offers diagnostic and remedial work for children and adults with such communication difficulties as stuttering, lisping, cleft palate speech, cerebral palsied speech, and voice, articulatory, and hearing problems. Diagnostic and remedial work is also available for persons with nonstandard language usage due to such conditions as hearing loss, brain damage, mental retardation, and environmental factors.

Fees.—The fee for an initial evaluation is \$20. Fees for additional specialized testing are dependent on the testing involved. The fees for individual speech or hearing therapy range from \$3 to \$10 a session. Fees are reduced for full-time students enrolled in the University and for persons receiving group therapy. Fees are payable at the Office of the Cashier.

The Reading Center

Director Mary Ellen Coleman

THE READING CENTER, 2018 Eye Street, N.W., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In

addition special reading improvement classes are conducted on the high school, college, and adult levels.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted, and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students, college students, and adults are offered throughout the year at stated intervals. Special classes for study skills and spelling are also available. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Reading Clinic.—The fee for individual diagnosis is \$60; for individual instruction, \$8 a lesson; for semi-individual instruction, \$6 a lesson; for instruction in small groups with common reading difficulties, \$5 a lesson.

Reading Improvement.—Classes are offered for students on high school and adult levels, including college and graduate students. Students are grouped according to needs, and emphasis is placed on vocabulary, study skills, spelling, and speed of comprehension. The fee for full-time students currently registered in the University is \$60 for twenty lessons; for other clients, \$100 for twenty lessons.

All fees are payable in advance at the Office of the Cashier.

Veterans Education

THE OFFICE OF THE REGISTRAR, Luther Rice Hall, 2121 Eye Street, N.W., assists students entitled to educational benefits as veterans or war orphans with any problems which may arise concerning their benefits. This Office also processes certification of enrollment and attendance to the Veterans Administration so that monthly allowances will be paid.

When feasible, students entitled to benefits as veterans or war orphans should consult the Office of the Registrar prior to submitting application to the Veterans Administration. All such students should obtain the instruction sheet issued by the Office of the Registrar, which sets forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration, and which includes other information of general interest.

The Veterans Administration is at 2033 M Street, N.W., Washington, D.C. 20421.

WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT (Chapter 35, Title 38, U.S. Code)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces, or a child of a person who has a permanent total disability resulting from such service, or a child of a person who died as a result of such a disability may be eligible for educational assist-

ance under this act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

VOCATIONAL REHABILITATION (Chapter 31, Title 38, U.S. Code)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

VETERANS' READJUSTMENT BENEFITS ACT (Chapter 34, Title 38, U.S. Code)

A veteran who has served on active duty after January 31, 1955, or a person who is currently on active duty may be eligible for as much as 36 months of educational assistance under this act. Application should be submitted to the Veterans Administration prior to registration.



STUDENT LIFE

Vice President for Student Affairs W.P. Smith, Jr.

Acting Dean of Men J.T. Hohman

Dean of Women Margaret Nolte

Assistant Dean of Men J.W. Smith

Assistant Deans of Women Lianna Larabee, Marianne Phelps, Ann Webster

THE OFFICE OF THE VICE PRESIDENT FOR STUDENT AFFAIRS develops policies and procedures to complement the University's formal instruction program. This program is implemented through the offices of the Dean of Men, Dean of Women, Health Services, International Students, Psychological Clinic, Student and Alumni Career Services, and Student Activities.

STUDENT SERVICES

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing near the University may be obtained at the Deans' offices. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive, with his notification of acceptance, a university residence hall brochure, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. The medical examination form must be completed by the applicant and his physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a \$100 *nonrefundable deposit* (\$200 for applicants admitted by early decision). Early decision students *must* submit the deposit by January 15. The housing deposit is credited toward the first semester's room charge. Rooms are leased for the academic year, and payment must be made in advance of each semester.

All unmarried freshman men and women and sophomore women under the age of 21 who are enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents or guardians. In exceptional cases permission to live elsewhere may be granted by the Dean of Men or the Dean of Women. Women who have completed two academic years as full-time students are permitted to live off campus.

1968-69 Residence Hall Rates for Two Semesters

	Room and Food Service	Room Only
For Men:		
Adams Hall		
double room (upperclassmen).....	\$1,050	\$500
triple room (freshmen).....	1,000	450
Calhoun Hall (upperclassmen).....	1,050	500
Madison Hall (graduate and professional students).....	1,050	500
Mitchell Hall (freshmen)		
single room.....	1,150	600
double room.....	1,050	500
Welling Hall		
single room (upperclassmen).....	1,050	500
double room.....	970	420
For Women:		
Crawford Hall (upperclass women).....	1,150	600
Graduate Women's Hall.....	1,235	685
Strong Hall (upperclass women)		
single room.....	1,235	685
double room.....	1,150	600
Thurston Hall.....	1,150	—

FOOD SERVICE

Residents of Thurston Hall and all resident freshman men under twenty-one are required to participate in the food service plan. The plan is optional for all other residents. Well-balanced meals are served cafeteria style seven days a week (20 meals). Food service payment does not cover University holidays or vacation periods. All meal cards admit to the dining rooms in Thurston, Mitchell, and Welling Halls. Residents of Adams, Calhoun, Madison, Welling, Crawford, and Strong Halls are given preference for the use of the dining room on the second floor of the Student Union. Residents of Thurston and Mitchell Halls may use the Student Union dining room only by special permission, which is granted those whose schedules allow very limited dining periods.

HEALTH SERVICES*

University Physicians R.B. Castell (*Director*), Margaret Callan

University Surgeon J.B. Harrell

Associate University Physicians Margaret McCabe, George Hoover, J.W. McTigue (*Eye*), R.F. Dyer, G.T. Economos, J.T. Hagenbucher, H.O. House (*Nose and Throat*), Richard Schoenfeld, Wilbur McElroy

Associate University Surgeon D.C. Wherry

Nurses Anne Winn, Ruth Hays

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 10 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician

* Staff for the academic year 1967-68.

and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination* of all applicants for courses in Physical Education who lack reports, approved by the Office of Health Services, of examinations by home physicians; (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services†. All additional hospital charges for operating room, anesthetics, laboratory, X-ray medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Physical Education.

HEALTH AND ACCIDENT INSURANCE

In addition to the above services, the Health Services Staff has arranged for Health and Accident Insurance, on an elective basis, for all full-time students. This policy covers the participant for 12 months, whether at home, at the University, or elsewhere.

Current yearly cost is \$34.56 (subject to change) payable at the fall registration. Arrangements can be made to pay in two installments of \$17.28 at the fall and spring registrations.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.
† See rule (5) for exception.

This policy contract is between the individual student and the insurance carrier and is accepted at any hospital or emergency room that accepts this type of medical work. Details of the policy are available at the Health Services Office.

PSYCHOLOGICAL CLINIC

Director E.L. Phillips

The George Washington University Psychological Clinic, 718 Twenty-first Street, N.W., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Behavior therapy, individual and group psychotherapy, and individual and group counseling are available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$20; for students currently enrolled in the University but not as degree candidates, the fee is \$60; for graduates of the University, \$60; for community clients, \$85. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.

INTERNATIONAL STUDENTS

Adviser W.A.R. Walker

International House, 2129 G Street, N.W., is the campus center for students from foreign countries. It serves also as the headquarters of the International Students' Society which seeks to promote international friendship and understanding by welcoming to its membership students from all countries, including those from the United States.

The Adviser to International Students has his Office in International House and is available for consultation each day throughout the school week.

STUDENT AND ALUMNI CAREER SERVICES OFFICE

Career Services Officer Gertrude McSurely

The Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., provides assistance to degree-seeking students and alumni seeking full-time, part-time, temporary, or permanent employment.

The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which private com-

panies, government agencies, service organizations, public school systems, and universities participate. Prospective teachers may establish permanent credentials files in the Student and Alumni Career Services Office. This service includes files for alumni seeking college and university faculty and administrative positions. The Office also provides individual interviews for students and alumni wishing career guidance.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

Religious services in various traditions are provided regularly for the University community as announced.

INTER-FAITH FORUM

A weekly luncheon-discussion activity called "As I See It" features guests who are asked to speak and participate in open discussion on topics concerning religious, social, and moral issues.

STUDENT UNION

The Student Union, 2125 G Street, N.W., and the Student Union Annex, 2127 G Street, N.W., are centers of student life on the University campus. The cafeteria on the first floor of the Union building serves breakfast, lunch, and dinner, as well as snacks. The second floor is reserved as a dining hall for resident students, and the third floor features a modern vendeteria and delicatessen. The University Ticket Office, on the first floor, handles the tickets for all nonathletic University events and outside events offering student rates. The Student Union Annex houses the Student Activities Office, which maintains information concerning student organizations and campus events. The meeting rooms and offices for the Student Council, other campus organizations, and student publications are also in the Annex. The facilities of the Student Union make it possible for the nonresident student to participate more fully in campus life.

UNIVERSITY BOOKSTORE

The University Bookstore is in a separate building at the quad entrance to the Union. The Bookstore carries a wide selection of school supplies and sundry items in addition to text books for all courses.

STUDENT ACTIVITIES

Coordinator J.H. Boyar

The offices of the Vice President for Student Affairs, the Dean of Men, and the Dean of Women are responsible for all co-curricular phases of student life, such as student activities, social life, and housing. The deans are available at all times for individual counseling concerning personal adjustment to university life.

STUDENT ACTIVITIES OFFICE

The Student Activities Office, in the Student Union Annex, 2127 G Street, N.W., is a part of the Office of the Vice President for Student Affairs. It serves as a clearing house and a coordination center for all co-curricular student activities. The staff assists student organizations in utilization of University resources, leadership training, and programming. The Office also serves as a central information agency where past and present records and rosters of all campus organizations are filed and available to the student body. Students interested in participating in any phase of University life including cultural, social, or academic programming should acquaint themselves with the facilities and functions of this Office.

STUDENT GOVERNMENT

Student Council.—The University believes in encouraging the development of responsibility in students by delegating to them considerable authority in the management of student activities. To this end, the organization of the University includes the Student Council, which, with the advice of the Coordinator of Student Activities, is responsible for the conduct of all student activities. The Student Council is elected annually by the student body.

Committee on Student Life.—A major function of the Committee on Student Life is to review acts of the Student Council or of any other group engaged in extracurricular activities.

A second function is advisory. The Committee may offer recommendations to the Student Council on which the Council must act at its next regular meeting. It may also make recommendations to the President of the University at his request or on its own initiative.

Despite its broad powers, the Committee acts only when it believes that a vital interest of the University has been overlooked. The Committee, appointed annually by the President, is composed of 12 members, 6 of whom are students and 6 faculty members.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in the University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to participate in student activities.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics.

The control and administration of all student activities are outlined in a separate bulletin called "Information and Regulations Governing Student Activities."

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in basketball, baseball, tennis, golf, rifle, soccer, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council.

The Women's Athletic Association and Intersorority Athletic Board cooperate with the Department of Physical Education for Women in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, canoeing, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, music, and radio broadcasting through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Enosinian Debating Society; Folk Music Society; Station WRGW; University Chorus, Madrigal Singers, Orchestra; and University Players. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Recreation Program.—The Student Council and the departments of Physical Education arrange dances, movies, and trips at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which nationally known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Art Exhibits.—The work of locally, nationally, and internationally known artists is shown in monthly exhibits in the Dimock Gallery in Lisner Lounge.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the Annual Homecoming Musical and other activities.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree, the singing of Christmas music, service projects, and the observance of a special Christmas service.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Phi Beta Kappa.—A national honor society recognizing "outstanding intellectual capacity well employed" in the field of liberal arts and sciences. Senior and junior students who are candidates for the degree of Bachelor of Arts or Bachelor of Science in Columbian College and who have shown broad cultural interests, distinguished scholarly achievement, high character, general promise, and scholarly ideals may, to a number not exceeding 15 per cent of a class, be

elected to membership by the Faculty members of the Alpha Chapter of the District of Columbia.

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science, pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Aesculapian Society.—An honorary premedical fraternity.

Alpha Kappa Delta.—A national sociology society.

Alpha Lambda Delta.—A national fraternity established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman women who attain a scholastic average of at least 3.50.

Delphi.—An intersorority honorary society.

Delta Phi Epsilon.—A foreign service fraternity.

Delta Sigma Rho-Tau Kappa Alpha.—A national forensic society.

Gate and Key.—An intrafraternity honorary society.

Iota Sigma Pi.—A national chemical society for women.

Mortar Board.—A national society for senior college women, stressing leadership, scholarship, and service.

National Collegiate Players (Pi Epsilon Delta).—A national drama honorary fraternity.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Scarlet.—A service honorary society for sophomore and junior men.

Phi Epsilon Phi.—A national botany fraternity.

Phi Eta Sigma.—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholarship average of at least 3.50.

Phi Sigma Tau.—A national philosophy honor society.

Pi Delta Epsilon.—A national collegiate journalism fraternity.

Pi Mu Epsilon.—A national mathematics honor society.

Psi Chi.—A national psychology fraternity.

Sigma Alpha Eta.—A national speech and hearing fraternity.

Sigma Delta Pi.—A national Spanish honor society.

Sigma Pi Sigma.—A national physics fraternity.

Tassels.—A service honorary society for sophomore women.

PROFESSIONAL ORGANIZATIONS

Alpha Chi Sigma (chemistry), Alpha Kappa Psi (commerce and economics), Association for Hospital Administration, Delta Nu Alpha (national professional transportation fraternity), Phi Delta Gamma (graduate), Phi Delta Kappa (education), Pi Lambda Theta (education), Society for the Advancement of Management, Student National Education Association.

SOCIAL FRATERNITIES

Alpha Epsilon Pi, Delta Tau Delta, Kappa Sigma, Phi Sigma Delta, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Alpha Mu, Sigma Chi, Sigma Phi Epsilon, Sigma Nu, Tau Epsilon Phi, Tau Kappa Epsilon.

SOCIAL SORORITIES

Alpha Delta Pi, Alpha Epsilon Phi, Chi Omega, Delta Gamma, Delta Phi Epsilon, Delta Zeta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, Phi Sigma Sigma, Pi Beta Phi, Sigma Delta Tau, Zeta Tau Alpha.

DEPARTMENTAL CLUBS

Anthropology Club, Art Club, Education Council, El Club Español, Enosinian Debating Society, Geology Club, German Outing Club, Le Cercle Français, Lester F. Ward Sociological Society, Russian Club, Women's Athletic Association.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Christian Science Organization, Eastern Orthodox Club, Episcopal Student Association, Lutheran Student Association, Newman Club, Unitarian Universalist Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

STUDENT PUBLICATIONS

The Cherry Tree (the yearbook), *The University Hatchet* (weekly newspaper), *The Potomac* (literary magazine), *The Wig* (humor magazine).

OTHER ORGANIZATIONS

Alpha Phi Omega (national service fraternity), Alpha Theta Nu (scholarship winners), Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Ice Hockey Club, Interfraternity Council, International Students' Society, Intersorority Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Senior Panhellenic Association, Station WRGW, Student Council, University Pep Band, Young Democrats Club, Young Republican Club.



COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Dean C.D. Linton

Associate Dean G.M. Koehl

Assistant Deans J.L. Métivier, Jr., R.C. Rutledge, H.E. Yeide, Jr.

FACULTY—ACADEMIC YEAR 1967-68

Professors Dana Abell (*Visiting*), J.G. Allee, Jr., Joseph Aschheim, Stanley Baker (*Visiting*), Otto Bergmann, J.W. Brewer, H.F. Bright, R.G. Brown, A.E. Burns, Elizabeth Burtner, W.E. Caldwell, G.V. Carroll, T.F. Carroll (*Visiting*), I.H. Cisin, J.H. Coberly, C.W. Cole, Milton Crane, C.H. Danhof, R.H. Davison, V.J. DeAngelis, A.H. Desmond, Julian Eisenstein, O.W. Fryckstedt (*Visiting*), C.E. Galbreath, Wood Gray, Andrew Gyorgy, R.G. Hanken, I.B. Hansen, R.C. Haskett, G.F. Henigan, P.H. Highfill, Jr., H.C. Hinton, H.H. Hobbs, Thelma Hunt, Herbert Jehle, E.H. Johnson, R.G. Jones, Norman Kaplan, J.W. Kendrick, Hewitt Kenyon, J.C. King, D.C. Kline, J.L. Knetsch, G.M. Koehl, W.H. Kraus, Solomon Kullback, J.F. Latimer, Thelma Z. Lavine, H.L. LeBlanc, W.K. Legner, L.P. Leite, Sar Levitan (*Research*), B.I. Levy, J.B. Levy, E.J.B. Lewis, C.D. Linton, T.P.G. Liverman, Kurt London, W.A. MacDonald, G.L. Mangum (*Research*), H.M. Merriman, Charles Milton (*Research*), R.H. Moore, Edith Mortensen, J.N. Mosel, S.C. Munson, Gardner Murphy (*Visiting*), Selma Mushkin (*Research*), C.R. Naeser, David Nelson, Benjamin Nimer, T.G. Overmire (*Visiting*), H.J. Parry, T.P. Perros, C.W. Pettit, E.L. Phillips, R.E. Purcell, J.P. Reesing, Jr., J.W. Robb, Mario Rodriguez, H.M. Sachar, M.W. Schein (*Visiting*), W.E. Schmidt, R.P. Sharkey, Henry Solomon, Loretta Stallings, R.W. Stephens, E.L. Stevens, C.T. Stewart, Jr., Rafael Supervia, C.T. Taam, D.M. Taylor (*Research*), Geza Teleki, R.B. Thompson, B.D. Van Evera, L.A. Vigneras, R.C. Vincent, R.D. Walk, R.H. Walker, Jr., D.S. Watson, R.L. Weintraub, D.G. White, R.K. White, D.L. Wise (*Visiting*), R.E. Wood, S.N. Wrenn, Helen Yakobson, A.J. Zuchelli

Adjunct Professors J.C. Broderick, P.F. Gallagher, E.G. Kauffman, J.W. Pierce

Associate Professors Fred Abrams, Caroline Adams, J.J.W. Baker (*Visiting*), Bette Barton, Lee Bielski, L.S. Bowling, Sr., S.J. Brown, J.F. Burks, A.E. Claeysens, Jr., A.G. Coates, T.F. Courtless, Jr., D.S. Douglas, Nicolae Filipescu, Roland Fleischer, J.A. Frey, Helmuth Fuchs (*Research*), R.N. Ganz, Jr., Lyndale George, Jacqueline Goodnow, Marvin Gordon, F.S. Grubar, Dagmar Henney, C.J. Herber, P.P. Hill, J.W. Hillis, Mary Holman, Ching-Yao Hsieh, Eva Johnson, W.R. Johnson, R.S. Jordan, J.M. Kaper (*Research*), Irving Katz, R.W. Kenny, Virginia Kirkbride, A.D. Kirsch, F.C. Kurtz, H.W. Lilliefors, W.L. Marsh, G.E. Mazzeo, G.E. McCandlish, Muriel McClanahan,

M.L. Meltzer, J.L. Métivier, Jr., P.J. Mika, J.B. Misenheimer, Jr., C.C. Mondale, C.A. Moser, Chei-Min Paik, Kittie Parker, L.B. Platt, Nadine Popluiko, Francisco Prats, S.O. Schiff, R.H. Schlagel, Chun-wen Shih, R.H. Shumway, F.R. Siegel, W.A. Smith, Jeanne Snodgrass, George Steiner, D.H. Teller, Klaus Thoenelt, W.L. Turner, C.E. Tuthill, R.Z. Vause, Dewey Wallace, Jr., R.C. Willson, Maida Withers, Elizabeth Wright, H.E. Yeide, Jr., R.Y. Yin

Assistant Professors Donna Abbey, Eugene Abravanel, Martha Adem, Don Allensworth, A.D. Andrews II, A.S. Banks (*Visiting*), Ruth Bari, R.R. Bonate (*Research*), A.D. Britt, E.A. Caress, Gayle Clapp, Mary Ann Coffland, G.F. Conner, Linda DePauw, C.F. Elliott, B.C. Field, G.L. Fowler, M.G. Gallagher, Kosara Gavrilovic, I.I. Glick, M.D. Green, W.B. Griffith, R.A. Hadley, Gloria Hammack, Lois Hammer, C.S. Harris, J.M. Harrison, Robert Honeygosky, R.J. Hornfeck, R.L. Humphrey, Jr., G.P. Huvé, C.T. Ireland, N.K. Khatcheressian, David Kieserman, Ruth Krulfeld, M.J. Landy, R.K. Lewis, R.C. Lindholm, W.F.E. Long, J.C. Lowe, Ruth McKay, F.L. Minn, Margaret Montzka, J.A. Morgan, Jr., Subramaniam Moryadas, Honey Nashman, Elizabeth Neyman, G.A. Olkhovsky, Robert Parris, Henry Peskin, C.H. Pfuntner, Judith Plotz, J.A. Quitslund, Sonya Quitslund (*Visiting*), R.W. Rafuse, Jr., C.B. Reed, Joan Regnell, Bernard Reich, Charles Rice, R.M. Riggs, J.R. Roman, Jr., Joan Rubin, W.B. Rucker, R.C. Rutledge, L.C. Schaefer, Lois Schwoerer, L.G. Seeger, D.E. Silber, Nan Smith, Claybourne Snead, Carl Steiner, Mykola Stepanenko, E.A. Stone, Margaret Sullivan, R.H. Tanck (*Research*), R.E. Thomas, Richard Thornton, N.A. Tilkens, L.J. Tille, Pao-chien Tseng, G.C.Y. Wang, R.L. Williams, Lawrence Winkler, J.E. Ziolkowski

Instructors D.M. Atwood, Dorothy Betz, Diana Bronte, Elizabeth Burkley, Joan Caton, Janet Collins, Anne Cordero, Murray Darrish, C.G. Dease, Barbara Dunham, Mohammad Fatemi, H.I. Gates, A.D. Genestre, Billie Gnodde, J.R. Greenya, F.O. Griffith, D.A. Gustafson, Margaret Hale, Lilien Hamilton, T.E. Harris, Julia Hicks, D.R. Janis, Nancy Johnson, J.K. Kern, S.J. Korchick, Diane Majerus, Mary McHenry, James McPherson, Rhoda Miller, Maria Oden, Ann Peaden, Nancy Powelson, George Rabchevsky, Margaret Reuss, L.B. Sanderson, Pastora San Juan, R.A. Schroth, Herbert Sims, Irene Thompson, J.L. Tropea, Cecilia Uribe, L.G. Usiskin, Mary Walden, Diane Weber, Judith Young, Thomas Zaucha

COMMITTEES*

Lower Division

THE DEAN'S COUNCIL†

1968: J.M. Harrison, R.H. Schlagel

1969: D.S. Douglas, D.E. Silber

1970: A.D. Andrews II, W.L. Turner

COMMITTEE ON ADMISSION AND ADVANCED STANDING

G.M. Koehl (*Chairman*), A.D. Kirsch, E.J.B. Lewis, T.P. Perros, R.C. Rutledge, R.L. Williams

* The Dean of Columbian College of Arts and Sciences is an ex officio member of all committees.

† Elected by the Faculty.

COMMITTEE ON SCHOLARSHIP

H.E. Yeide, Jr. (*Chairman*), Barbara Dunham, R.G. Hanken, G.E. Mazzeo, R.C. Rutledge, S.O. Schiff, R.C. Vincent

ADVISORY COMMITTEE

G.M. Koehl (*Chairman*), Barbara Dunham, Lilien Hamilton, Margaret Montzka, J.R. Roman, Jr., R.C. Rutledge, W.A. Smith, W.L. Turner, B.D. Van Evera, R.C. Vincent, R.L. Williams, Lawrence Winkler, H.E. Yeide, Jr.

Upper Division

THE DEAN'S COUNCIL*

1968: R.N. Ganz, L.J. Tilly
1969: J.F. Burks, Thelma Z. Lavine
1970: A.D. Kirsch, H.M. Sachar

COMMITTEE ON ADMISSION AND ADVANCED STANDING

C.W. Cole (*Chairman*), Edith Mortensen (*Secretary*), P.P. Hill, R.G. Jones, D.G. White

COMMITTEE ON THE USE OF CORRECT ENGLISH

R.M. Moore (*Chairman*), J.G. Allee, Jr., G.F. Henigan, Muriel McClanahan, R.C. Willson

COMMITTEE ON SCHOLARSHIP

W.F.E. Long (*Chairman*), J.A. Frey, H.M. Merriman, R.E. Purcell, S.N. Wrenn

COMMITTEE ON STUDIES

C.D. Linton (*Chairman*), A.H. Desmond, P.H. Highfill, Jr., H.L. LeBlanc, W.E. Schmidt

ADVISORY COUNCIL FOR ARTS AND SCIENCES†

CHAIRMAN

Mark Sullivan, Jr., *Auchincloss, Parker & Redpath, Washington, D.C.*

MEMBERS OF THE COUNCIL

Edgar Robey Baker (*University Trustee*). *Vice President for Research and Development, TIME, Inc., New York, N.Y.*

Windsor P. Booth, *Chief of the News Service, National Geographic Society*

* Elected by the Faculty.

† This Council serves both Columbian College of Arts and Sciences and the Graduate School of Arts and Sciences. The President of the University, the Vice President for Academic Affairs, the Dean of Columbian College of Arts and Sciences, and the Dean of the Graduate School of Arts and Sciences are ex officio members of the Council.

- Waldron Faulkner, *Faulkner, Stenhouse, Fryer & Faulkner, Washington, D.C.*
 David Edward Finley (*Retired Director of the National Gallery of Art, Washington, D.C.*)
 Robert R. Garvey, Jr., *Executive Secretary, Advisory Council on Historic Preservation, Washington, D.C.*
 Patrick Hayes, *Washington, D.C.*
 Jean Ross Howard, *Assistant Director, Vertical Life Aircraft Council, Washington, D.C.*
 Wolfgang Herbert Kraus, *Professor of Political Science*
 Jeremiah Milbank, Jr. (*University Trustee*), *New York, N.Y.*
 William T. Pecora, *Director, Geological Survey, U.S. Department of the Interior*
 John Palmer Reesing, Jr., *Professor of English Literature*
 Sidney Dillon Ripley II (*University Trustee*), *Secretary, Smithsonian Institution*
 Julian H. Singman, *Attorney, Washington, D.C.*
 Sidney William Souers, *Rear Admiral, USNR (Ret.) (University Honorary Trustee), Chairman of the Board, General American Life Insurance Company, St. Louis, Mo.*
 Ira Rockwood Telford, *Professor of Anatomy*
 Louis B. Wright, *Director, Folger Shakespeare Library*

INTRODUCTION

Since its founding in 1821, Columbian College of Arts and Sciences, the liberal arts college of the University, has continued to expand and develop with the city of Washington. Its central situation makes participation in the life of the Nation's Capital convenient for resident students. The cosmopolitan nature of the student body reflects the atmosphere of a great world capital. Because the students come from the fifty states and from eighty-five foreign countries, class discussions and casual student conversations are enriched by a challenging variety of viewpoints.

Columbian College offers programs leading to the degrees of Bachelor of Arts and Bachelor of Science, and Bachelor of Science in Medical Technology, prelegal and premedical programs; the first two years of the professional programs in Education, in Government and Business Administration, and in Public and International Affairs; and a two-year terminal curriculum in Accounting.

All entering freshmen and transfer students of less than junior class standing except those in the fields of engineering and applied science, enter the lower division of Columbian College. The division is primarily concerned with providing (1) the personal and academic guidance needed in adjusting to college life and in selecting and preparing for a major field and (2) the broad cultural foundations in language and literature, science, and social studies on which major-field specialization in the upper division is built.

During the junior and senior years the student is in the upper division, where he is guided by his major adviser. A student who plans to continue toward a Master's degree should plan his Bachelor's program so that it will prepare him for the graduate work of his interest.

The Faculty of Columbian College has academic jurisdiction over the off-campus programs leading to the degrees of Bachelor of Science in General Studies (areas of concentration in history, mathematics, political science, and

psychology), Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography.

These off-campus degree programs are administered by the College of General Studies.

THE COLUMBIAN COLLEGE PROGRAM

The Columbian College program is a contemporary application of the historic liberal arts tradition. Its purpose is to enable the student to develop both his particular abilities and his general awareness as a human being. It demands of the student a thorough acquaintance with one major area of learning and at the same time an understanding of how that specialization fits into the larger context of the scientific, social, and moral problems which confront modern man. It stresses not merely expertness but that broadly enlightened expertness which encourages its graduates to grow through the years in ability and wisdom.

SOPHOMORE YEAR IN PARIS PROGRAM

Freshmen whose average at the end of the first semester is 2.50 or better may be eligible to participate in The George Washington University-American College in Paris Sophomore Year in Paris Program. Qualified students will be encouraged to accept this opportunity to profit from the cultural and intellectual riches of Europe by spending their second year living and studying in Paris. The American College in Paris will arrange special trips and events for George Washington University students. Credits earned in this Program will be transferable toward a degree in Columbian College of Arts and Sciences. Since all courses are taught in English, a knowledge of French is not mandatory, but is desirable. Students with no training in the French language will be required to participate in an intensive five-week language program in Paris prior to the beginning of the academic year. (For "Language Study in Paris," see the 1968 Summer Sessions Catalogue.)

ENTRANCE REQUIREMENTS

Good character and an academic background appropriate for the program of studies contemplated are required.

LOWER DIVISION

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units* which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. One unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics; and one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.
2. The principal's statement that the applicant is prepared to undertake college work.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

3. College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test, the English Composition Achievement Test, and two additional achievement tests in subjects reflecting the applicant's major interests.

It is recommended that the examination be taken in December or January. Scores on tests taken in the junior year may be submitted. Arrangements for tests is the responsibility of the applicant and should be made with the Educational Testing Service, 20 Nassau Street, Princeton, N.J. 08540; or 1947 Center Street, Berkeley, Calif. 94704, not less than one month before the date of the test. In applying for the test, the applicant should specify that the scores be sent to the Office of Admissions, The George Washington University, Washington, D.C. 20006.

The Committee on Admission and Advanced Standing will consider the adequacy of the qualifications of an applicant who, because of unusual circumstances, does not present all the formal requirements stated above. The Committee may prescribe appropriate scholastic-aptitude tests of the University.

UPPER DIVISION

A quality-point index of 2.00 or higher in the work of the freshman and sophomore years is required for admission to degree candidacy in the upper division.

Bachelor of Arts.—Sixty-four hours of academic work based on the *Arts and Letters* curriculum in the lower division, or the equivalent.

Bachelor of Science.—Sixty-four hours of academic work based on the *Science* curriculum in the lower division, or the equivalent.

Bachelor of Science in Medical Technology.—Sixty-four hours of academic work including Biological Sciences 1-2; Chemistry 11-12, 22, and 50.

REGULATIONS

Regulations regarding ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 21-30; other University regulations, on pages 40-46.

ACADEMIC WORK LOAD

A full-time student not on probation may take ordinarily not more than 15 semester hours. A student employed more than 20 hours a week who is not on probation may take not more than 10 hours.

The amount of work taken by a student on probation is limited by the Committee on Scholarship.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

The student is held responsible for all the work of the course in which he is registered, and all absences must be excused by the instructor in charge before provision is made for the student to make up work missed. Excessive absence

in any course will lead to loss of credit in that course, even though other requirements, such as tests, term papers, and examinations, are met.

A student whose absences from any class, whether excused or unexcused, are in excess of one-fourth of the total number of class periods will receive the grade of *F* for the course, except by special ruling of the Dean's Council on recommendation of the instructor.

USE OF CORRECT ENGLISH

The use of correct English, oral and written, is required in all courses. Any student whose English in any course whatever is deemed unsatisfactory may be reported by the instructor to the Dean and to the Committee on the Use of Correct English. The Chairman of the Committee may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed by failure to make up any such deficiency in English to the satisfaction of the Committee and the Dean.

HONORS

Lower Division Honor Roll.—The name of every lower division student who has a quality-point index of 3.50 or higher on the basis of his complete record at this University is placed on the honor roll. To be eligible, the student must have completed no less than 15 semester hours. (A place on the honor roll does not necessarily mean that the student will receive honors upon graduation.)

Dean's List.—The name of every student who has a quality-point index of 3.50 or higher on a minimum of 15 semester hours of work taken in any one semester is placed on the Dean's List for that semester.

CREDIT/NO CREDIT OPTION (see page 41)

PROBATION

The student must maintain a quality-point index of at least 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00. The student whose average is 2.00 or below for work undertaken during this probationary period is suspended. The student whose over-all quality-point index is still below 2.00 but whose average for work undertaken during the probationary period is above 2.00 may be continued on probation by the Committee on Scholarship.

SUSPENSION

The student whose index falls below 1.50 or who is placed on probation for a third semester, whether successive or after an interval, is suspended.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Admission and Advanced Standing that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student suspended twice for poor scholarship will not be readmitted.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors file in the Office of the Dean the names of freshman and sophomore students who are doing work of *D* grade or lower. A notice of Warning is sent to the student and a copy filed with the appropriate adviser. A "warning" constitutes notice to the student that he must consult his instructor and adviser at the earliest opportunity.

The foregoing scholarship rules are applied to a student with a limited schedule only when he has undertaken a minimum of 15 semester hours.

CORRESPONDENCE AND HOME-STUDY COURSES

No credit is given for work done by correspondence or in home-study courses.

CLASSIFICATION OF STUDENTS

A *freshman* is a student who is in the process of completing 32 semester hours including 18 hours of his curriculum requirements.

A *sophomore* is a student who has completed between 32 and 64 semester hours, including 18 hours of his curriculum requirements.

A *junior* is a student who has completed between 64 and 94 semester hours and filed the declaration of his major, approved by his adviser, in the Office of the Dean.

A *senior* is a student who has completed between 94 and 124 semester hours including at least 6 hours of second-group course work in his major.

The Lower Division

A STUDENT IN THE LOWER DIVISION is given the opportunity of taking a wide range of liberal arts subjects—humanities, foreign languages, sciences, social studies—both as a means of laying the groundwork for the more concentrated major-field study in the upper division and as a means of determining what academic area is best adapted to his interests and aptitudes. In order to insure that these general educational requirements are met, the student is not permitted to anticipate major-field special courses until all basic areas are covered.

ENTRANCE REQUIREMENTS

Entrance requirements of the lower division are stated on pages 63–64.

ADVISORY SYSTEM

Each student in the lower division is provided with two kinds of counseling. *Academic* advising is performed by members of the Faculty selected for their knowledge of freshman-sophomore requirements and programs, and each student makes up his program in consultation with the adviser assigned to him before registration. *Personal* counseling is available through the offices of the Dean of Men and the Dean of Women. All students are encouraged to maintain close contact with their Faculty advisers.

Students who intend to transfer after the sophomore year to the School of Education, the School of Government and Business Administration, or the School of Public and International Affairs are assigned special advisers to assist them in planning their programs.

An academic warning system permits early attention to students whose work falls below required standards. In such cases, students are required to consult regularly with their advisers. On request, copies of academic warnings or probation notices may be sent to parents or guardians, who are themselves welcome to meet with members of the advisory staff.

REQUIRED PLACEMENT EXAMINATIONS

English.—Students whose College Board English Composition Achievement Test scores suggest inadequate preparation may be assigned to English 1x or may be tested in vocabulary, spelling, grammar, standard usage, and writing skill, before placement in either English 1x or 1. Students whose scores indicate marked superiority will be allowed to waive the English 1 requirement.

Foreign Languages.—A standardized placement examination is required of all entering students who wish to continue in college the language begun in high school (Chinese, French, German, Italian, Russian, or Spanish). Upon completion of the examination, assignment is made to the appropriate course.

Mathematics.—Special placement examinations are required of all entering freshmen who expect to register for plane trigonometry or beginning calculus. Students showing deficiencies may be assigned to remedial work.

FIRST- AND SECOND-GROUP COURSES

A freshman or sophomore may take second-group courses (courses numbered 101–200) only with the written permission of the instructor and of the Dean.* A student is not permitted to postpone a required first-group course to take a second-group course for elective credit. The principle that first-group courses must be taken in the freshman and sophomore years, and advanced courses in the junior and senior years, is rigidly adhered to in approving student programs. Freshmen and sophomores on probation may take second-group courses only with the written permission of the Committee on Scholarship.

PROFESSIONAL COURSES

Except for students intending to apply for the combined degrees of Bachelor of Arts and Doctor of Medicine or the degree of Bachelor of Science in Medical Technology, not more than 12 hours of professional courses, i.e., courses offered in units of the University other than Columbian College, may be included in the 124 hours required for the Bachelor's degrees in Columbian College. Students electing professional courses under this rule must obtain the approval of the Dean before registration.

PHYSICAL EDUCATION REQUIREMENT

Freshmen and sophomores (except those enrolled in the Physical Education curricula) are required to take four semesters of physical education (Physical

* Students enrolled in the two-year terminal curriculum in Accounting may take those second-group courses which are specified as part of their curriculum without obtaining the written permission of the instructor or the Dean.

Education 5 or 6) unless they are registered for less than 9 semester hours or unless regular employment during the day makes it necessary to take all classes during the evening hours.

Any other exemptions will be granted only upon written petition which has been recommended by the Physical Education department concerned and approved by the Dean. Students exempt from the physical education requirement must substitute four hours of elective.

The required medical and physical examinations, as specified by the departments of Physical Education, will be arranged at the beginning of each semester for those students who lack reports.

FOREIGN LANGUAGE REQUIREMENT

In curricula requiring foreign languages a student must complete satisfactorily the equivalent of two years of college work in a single foreign language. (Chinese, French, German, Greek*, Italian, Latin*, Russian, Spanish.)

A student offering for admission four acceptable high school units of a single foreign language, or the equivalent, is not required to take any foreign language.

A student who offers less than four units and wishes to meet the requirement by continuing in the same language must take the language placement test.

In general, one year of high school language is considered equivalent to one semester of college language.

In some instances foreign languages are required or recommended as preparation for advanced work. The student should consult his adviser so that appropriate foreign languages may be included, when necessary, in his lower division program.

ENGLISH REQUIREMENT

Entering students registered in the arts and sciences curricula must follow the sequence of English 1 or 1x, both halves of one of the introductory literature courses, and English 40. This does not apply to students transferring to these curricula or students registering in the preprofessional or terminal curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS†

A required course may be waived and admission to an advanced course granted by the passing of a waiver examination. Passing this examination does not entitle the student to any hours of credit. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

TRANSFER FROM LOWER DIVISION TO UPPER DIVISION

On completion of a lower division curriculum of 64 or more semester hours with a quality-point index of 2.00 or higher, the student must apply in the Office of the Dean for transfer to the upper division.

* Greek and Latin not acceptable for International Affairs and Public Affairs majors.

† This provision does not apply to the premedical student, all of whose required premedical work must be taken in a recognized college of arts and sciences.

LOWER DIVISION CURRICULA

Each of the following curricula comprises the first two years of a standard four-year college course.

All curricula in this group may be applied toward the degree of Associate in Arts. Students wishing to receive this degree must apply at the Registrar's Office at the time of registration for the fourth or last semester. The last 15 semester hours must be spent in residence in Columbian College.

IN PREPARATION FOR THE UPPER DIVISION OF COLUMBIAN COLLEGE:

Arts and Letters

First two years of the Bachelor of Arts curriculum:

	Semester Hours
Comp & Lit: English 1 or 1x; 51-52, 71-72, 91-92, Classics 71-72, French 51-52, German 51-52, Italian 51-52, Slavic 91-92, 93-94, or Spanish 51-52; English 40.....	12
*Foreign Lang:	12
†PE:	4
Science: Biological Sciences 1-2; Chemistry 3-4, 11-12; Geology 1-2; or Physics 1, 2 (or 1 and 30 for prephysics majors)	6-8
Social Studies: Anthropology 1-2; Economics 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 5-6; or Sociology 1-2.....	6
†Elective:	22-24
Total.....	64

Science

First two years of the Bachelor of Science curriculum:

	Semester Hours
Comp & Lit: English 1 or 1x; 51-52, 71-72, 91-92, Classics 71-72, French 51-52, German 51-52, Italian 51-52, Slavic 91-92, 93-94, or Spanish 51-52; English 40.....	12
Foreign Lang: French, German, Russian, or nonscience elective.....	12
NOTE.—A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4 or 6, German 4, or Russian 4 or 8, or by special examination.	
Math: Mathematics 3, 6, or electives.....	6
NOTE.—The Mathematics 3 requirement may be satisfied by offering two years of high school algebra acceptable for admission; the Mathematics 6 requirement may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	
†PE:	4

* See page 68 for foreign language requirement

† See pages 67-68 for physical education requirement

‡ It is suggested that electives include one of the following courses: Art 31-32, 71-72; Music 3-4; Philosophy 51-52; Religion 9-10, 21, 59-60.

The student should obtain the advice of his major department as to proper prerequisite and collateral courses for the intended major.

Credit may be given for a limited number of courses elected in Physical Education, with the approval of the Dean.

	Semester Hours
Science: Biological Sciences 1-2.....	8
Two additional full-year courses are required, to be chosen from Chemistry 11-12, Geology 1-2, and Physics 1, 2 (or 1 and 30 for prephysics majors).....	14-16
Social Studies: Anthropology 1-2; Economics 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 5-6; or Sociol- ogy 1-2.....	6
*Elective:	0-2
Total.....	64

Premedical

Premedical students may follow either the Arts and Letters or the Science curriculum above in fulfilling the first 60 semester hours of the premedical requirement. Each premedical program must be approved by the premedical adviser. A minimum of 90 semester hours applicable toward a degree in an approved college of arts and sciences including:

1. **Biology:** 8 semester hours. This may be either in general biology or zoology but may *not* include separately credited courses in botany.
2. **Chemistry:** 8 semester hours of general inorganic chemistry (which may include qualitative analysis), including 4 semester hours of laboratory; and 6 to 8 semester hours of organic chemistry, including laboratory.
3. **Embryology:** a minimum of 2 semester hours of vertebrate embryology, including laboratory. Under unusual circumstances, to be individually evaluated, this requirement may be met by a course in biology offering embryology as a substantial part of the course.
4. **English:** 6 semester hours in composition and literature. This may be the usual introductory college course or its equivalent.
5. **Physics:** 8 semester hours, including at least 2 semester hours of laboratory. While not required for admission, courses in histology, genetics, and mathematics are strongly recommended.

With the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. A well-balanced program, rather than a specific field, is the criterion by which an applicant is judged. It is not advisable to take courses that appear to cover subject matter in the medical program.

While well-qualified candidates are eligible for admission after completing the minimum 90 semester-hour requirement, the majority of applicants are found to be better prepared for the study of medicine after four years of college work.

Medical Technology

First two years of the Bachelor of Science in Medical Technology curriculum. See pages 78-79 for a description of the program and the requirements for the junior and senior years:

- It is suggested that electives include one of the following courses: Art 31-32, 71-72; Music 3-4; Philosophy 51-52; Religion 9-10, 21, 59-60.
- The student should obtain the advice of his major department as to proper prerequisite and co-requisite courses for the intended major.
- Credit may be given for a limited number of courses elected in Physical Education, with the approval of the Dean.

	Semester Hours
Comp & Lit: English 1 or 1x: 51-52, 71-72, 91-92, Classics 71-72, French 51-52, German 51-52, Italian 51-52, Slavic 91-92, 93-94, or Spanish 51-52; English 40.....	12
Foreign Lang: French, German, Russian, or nonscience elective.....	12
NOTE.—A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4 or 6, German 4, or Russian 4 or 8, or by special examination.	
Math: Mathematics 3, 6, or electives.....	6
NOTE.—The Mathematics 3 requirement may be satisfied by offering two years of high school algebra acceptable for admission; the Mathematics 6 requirement may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	
*PE:	4
Science: Biological Sciences 1-2.....	8
Chemistry 11-12, 22, 50.....	16
Social Studies: Anthropology 1-2; Economics 1-2; Geography 51, 52; History 39-90, 71-72; Political Science 5-6; or Sociology 1-2.....	6
†Elective: May be selected in lieu of the various exemptions.	
Total.....	64

IN PREPARATION FOR THE SCHOOL OF EDUCATION:

Education

First two years of the Bachelor of Arts in Education curriculum of the School of Education:

	Semester Hours
Engl: Composition 1 or 1x, 2.....	6
Literature 51-52, 71-72, or 91-92.....	6
Foreign Lang: Chinese, French, German, Italian, Latin, Russian, or Spanish. See page 68 for foreign language requirement.....	12
Math: Two semesters to supplement senior high school courses, chosen from Mathematics 3, 6, 9, 10.....	6
*PE:	4
Psyc: Psychology 1, 22.....	6
Science: Three semesters (two in biological science and one in physical science or vice versa) to supplement senior high school courses in those fields and chosen from Biological Sciences 1-2; Chemistry 3-4, 11-12; Geology 1-2; Physics 1, 2 (or 1 and 30 for students electing Physics as a teaching field). A Secondary Education Major offering for admission two or more acceptable senior high school units in the above areas of science may be exempted from one semester of this requirement.....	10-12
Social Studies: History 71-72 or Political Science 5-6.....	6
Anthropology 1-2; Economics 1-2; Geography 51-52; History 39-40, 71-72; Political Science 5-6; or Sociology 1-2.....	6

* See pages 67-68 for physical education requirement.

† It is suggested that electives include one of the following courses: Art 31-32, 71-72; Music 3-4; Philosophy 51-52, Religion 9-10, 59-60.

Credit is not given for courses in Physical Education.

Sp&D: Speech and Drama 1 (or 11, if the Department so advises)
 Elective: May be selected in lieu of the various exemptions.

Total..... 65-67

Physical Education for Men

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

	Semester Hours
Engl: English 1 or 1x, 2.....	6
PE: Physical Education 41, 45, 46, 49, 50, 59-60.....	20
Psyc: Psychology 1, 22.....	6
Science: Biological Sciences 1-2, Chemistry 3-4.....	16
Social Studies: Anthropology 1-2 or Sociology 1-2.....	6
History.....	6
Elective:.....	4
Total.....	64

Physical Education for Women

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

	Semester Hours
Engl: Composition 1 or 1x, 2.....	6
Literature 51-52, 71-72, or 91-92.....	6
PE: Physical Education 43-44.....	4-6
Physical Education 49, 50.....	6
Physical Education 51-52.....	4-6
Psyc: Psychology 1, 22.....	6
Science: Biological Sciences 1-2, Chemistry 3-4.....	16
Social Studies: Anthropology 1-2; History 39-40, 71-72; Political Science 5-6; or Sociology 1-2.....	6
Elective:.....	6-10
Total.....	64

IN PREPARATION FOR THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION:

Accounting, Business Administration, and International Business

First two years of the Bachelor of Business Administration curricula in Accounting, Business Administration, and International Business:

	Semester Hours
Acct: Accounting 1-2.....	6
B Ad: Business Administration 51.....	3
Comp: English 1 or 1x, 2.....	6
*Lang or Lit: Chinese 3-4; English 51-52, 71-72, 91-92; French 3-4 or 6, or 51-52; German 3-4 or 51-52; Italian 3-4 or 51-52;	

* This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.

	Semester Hours
Slavic 3-4 or 7-8, 91-92 or 93-94; Spanish 3-4 or 6, or 51-52	6
Math: Mathematics 15, 16	6
*PE:	4
Science: Biological Sciences 1-2; Chemistry 3-4, 11-12; Geology 1-2; or Physics 1, 2	6-8
Social Studies: Economics 1-2, Political Science 5-6, Psychology 1	15
Anthropology 1, Sociology 1, or Psychology 8	3
Stat: Statistics 51	3
†Elective: (Speech is recommended; students interested in Interna- tional Business include Geography 52)	4-6
Total	64

Business and Economic Statistics

First two years of the Bachelor of Business Administration curriculum in Business and Economic Statistics:

	Semester Hours
Acct: Accounting 1-2	6
Econ: Economics 1-2	6
Engl: English 1 or 1x, 2	6
†Foreign Lang:	12
Math: Mathematics 21, 22, 23	9
*PE:	4
P Sc: Political Science 5-6, or	
Phil: Philosophy 51-52	6
Stat: Statistics 51 or 91, 52	6
†Elective:	9
Total	64

IN PREPARATION FOR THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS:

International Affairs

First two years of the Bachelor of Arts curriculum in International Affairs:

	Semester Hours
Engl: Composition 1 or 1x, 2	6
Literature 51-52, 71-72	6
†Foreign Lang:	12
Geog: Geography 52	3
§Math, Science: Biological Sciences 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1, 2; or Statistics 51, 52	6-8
*PE:	4

* See pages 67-68 for physical education requirement.

† Credit is not given for courses elected in Physical Education.

‡ See page 68 for foreign language requirement.

§ This requirement may be satisfied by 6 hours of Mathematics, by 3 hours of Mathematics plus Statistics 51, or by 6 to 8 hours of science.

	Semester Hours
Social Studies: Economics 1-2; History 40, 71-72; Political Science 5-6....	21
*Elective: To satisfy minimum required credits.....	4-6
Total.....	64

Public Affairs

First two years of the Bachelor of Arts curriculum in Public Affairs:

	Semester Hours
Engl: English 1 or 1x, 2.....	6
†Foreign Lang:	12
Math, Science: Biological Sciences 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1, 2; or Statistics 51, 52.....	6-8
‡PE:	4
Social Studies: Economics 1-2; History 39-40, 71-72; Political Science 5-6	24
*Elective: To satisfy minimum required credits.....	10-12
Total.....	64

TERMINAL CURRICULUM

The following two-year terminal curriculum leads to the degree of Associate in Arts. Students in this curriculum must spend the last 15 hours in residence in Columbian College:

Accounting

	Semester Hours
Acct: Accounting 1-2, 101, 111, 121-22, 161, 171, 181, 191, 193	33
B Ad: Business Administration 131, 161, 162.....	9
Econ: Economics 1-2	6
Engl: English 1 or 1x, 2.....	6
‡PE:	4
*Elective: To be selected with the approval of the adviser.....	6
Total.....	64

Upper Division

A STUDENT working toward a Bachelor's degree in the arts or sciences who has 64 or more acceptable semester hours, whether earned in this University or transferred from another institution, is registered in the upper division of Columbian College. (For transfer from lower division to upper division, see page 69.) It is assumed that he has met the requirements of the lower division *Arts and Letters* or *Science* curriculum. If he has not, he must begin to make up

* Credit is not given for courses elected in Physical Education.

† See page 68 for foreign language requirement.

‡ See pages 67-68 for physical education requirement.

his deficiencies immediately upon admission and continue to carry courses to this end until all requirements are met.

THE BACHELOR'S DEGREES

Columbian College offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Medical Technology.

In cooperation with the School of Medicine a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine is offered.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the upper division of Columbian College. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior year must be completed in residence.

For the regulation governing students who are absent from the University for one semester or more, see "Continuous Registration," page 43.

CURRICULUM REQUIREMENTS

At least 60 semester hours beyond those of the appropriate lower division curriculum and the satisfactory completion of the major are required. Each program must be approved by the major adviser and by the Dean.

At least 24 of the last 60 hours must be taken in subjects not included in the major field or department. The student should consult his major adviser at each registration concerning his choice of electives.

Except for premedical and medical technology students, not more than 12 hours of professional courses (i.e., courses offered in units of the University other than Columbian College) may be included. The election of professional courses must be approved by the Dean's Council prior to registration. Ordinarily courses in Physical Education and technical courses in Education will not be approved toward a degree.

A change in degree candidacy (e.g., from Bachelor of Arts to Bachelor of Science) requires the permission of the Dean. The degree requirements effective at the time the change is approved must be met.

Each student must select and file with the Dean a choice of major upon entering the upper division. He may change the major only with the consent of the Dean and of the department or committee concerned, and must meet the requirements for the new major in effect at the time the change is approved.

First-group courses may be required as prerequisites to the major, but because of their introductory character they may not be counted as part of such programs. (See "Explanation of Course Numbers.")

Students transferring from other institutions or from other schools, colleges, or divisions in this University, with major requirements wholly or substantially met, must complete satisfactorily at least 12 semester hours of approved work in the major field in the upper division of Columbian College. This work will count as part of the minimum residence requirement.

Examination for Waiving Curriculum Requirements.—A required course may be waived and admission to an advanced course granted by passing of a waiver examination. Passing this examination does not entitle the student to any hours of credit. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

INDEPENDENT STUDY PLAN

A junior or senior of demonstrated capacity, with special interest in the subject matter of a course, may be permitted to undertake independent study under the personal direction of an instructor, in accordance with the rules of the department or departments concerned. Credit under this plan is limited to the specific course-credits as designated in the list of courses of instruction.

BACHELOR OF ARTS

The work of the junior and senior years, including a major in one of the following fields, must be approved by the major adviser and by the Dean.

American Thought and Civilization	Latin American Studies
Anthropology	Mathematical Statistics
Applied Statistics	Mathematics
Art History and Theory	Music:
Biology	Applied Music
Botany	Music History and Literature
Chemistry	Music Theory
Classical Archeology and Greek	Philosophy
Dramatic Art	Physics
Economics	Political Science
English Literature	Psychology
Fine Arts	Religion
French Language and Literature	Russian Language and Literature
Geography	Sociology
Geology	Spanish American Literature
Germanic Languages and Literatures	Spanish Language and Literature
History	Speech
Journalism	Speech Pathology and Audiology
Latin	Zoology

COMBINED DEGREES OF BACHELOR OF ARTS AND DOCTOR OF MEDICINE

A candidate for the combined degrees of Bachelor of Arts and Doctor of Medicine must: (1) complete the Medical School entrance requirements; (2) fulfill the Arts and Letters curriculum of the lower division requirements (see page 69); (3) accumulate 94 semester hours in the liberal arts, including a minimum of 30 in the upper division of Columbian College; (4) obtain the approval of the Dean of Columbian College at the time of entering the School of Medicine; (5) obtain the recommendation of the Dean of the School of Medicine at the completion of all prescribed courses in the first year of the School of Medicine, at which time the degree of Bachelor of Arts will be conferred (professional work taken at another institution will not satisfy the major requirement for the combined degrees); (6) maintain throughout the entire course the scholarship level required for graduation.

BACHELOR OF SCIENCE

The work of the junior and senior years, including a major in one of the following sciences, must be approved by the major department and by the Dean.

Biological Sciences

Biology
Botany
Zoology

Physical Sciences

Applied Statistics
Chemistry
Geology
Mathematical Statistics
Mathematics
Physics

THE UNDERGRADUATE MAJOR

There are two types of undergraduate majors: the field-of-study major and the departmental major.

Field-of-Study Major

Each Field-of-Study Major covers a carefully worked out field of coordinated study and is under the supervision of the appropriate department and the Columbian College Committee on Studies.

The Field-of-Study Major requires no specific number of semester hours, no specific program of courses, and no specific quality-point index for the major, although the student is required to meet the over-all general requirements for the degree (at least 124 semester hours with a quality-point index of at least 2.00). Ability to pass the Major Examination is assumed to be a convincing demonstration that the student possesses the breadth, depth, and quality of knowledge of his major usually defined in terms of semester hours, courses, grades, and a better-than-average quality-point index. A pamphlet on each field is obtainable from the departmental chairman. The prospective student should place himself under the direction of the appropriate adviser immediately upon completing lower division work and beginning his junior year.

The Field-of-Study Major places special emphasis on the intellectual development of the individual student. Programs in the same major may vary, depending upon the individual student's background, previous study, and aptitudes. The student is expected to consult his adviser frequently, and the special proseminar offered in the field gives him further opportunity for individual advice and direction in pursuing a program especially adapted to his needs and abilities. A close student-adviser relationship is essential for the student's success under the Field-of-Study Major plan.

The following Field-of-Study Majors are offered: American Thought and Civilization, English Literature, French Language and Literature, History, Latin American Studies, Philosophy, Religion, Russian Language and Literature, Spanish American Literature, Spanish Language and Literature.

PROSEMINAR IN THE MAJOR

A proseminar is offered in each field to help the student in his reading, study, and laboratory exercises acquire a coordinated knowledge of his field. It is a presentation of the content and methods of the major field as a whole through the organization and coordination of the knowledge obtained in the various

formal courses in the major subject and of material not usually included in such courses. This course is not required, but, if elected, strict attendance is essential. Six semester hours, but no qualitative grade, may be assigned. When registered in this course, the student has the privilege of visiting, subject to the approval of the instructor, any other appropriate course offered in the College. (Regular attendance in a course, either for credit or as an auditor, requires registration and payment of tuition.) Proseminars are open only to the student who has been accepted as a candidate under that specific major.

THE MAJOR EXAMINATION

The Major Examination will normally be taken at the close of the senior year, a student on a limited schedule may take it no earlier than one calendar year before graduation. A student who fails to pass a Major Examination may, at the discretion of the Committee on Studies, be re-examined at a later regular major-examination period. The Committee on Studies has general supervision of the preparation, reading, and grading of Major Examinations. Major Examinations are held each semester on dates fixed by the department or departments concerned, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 26 for the summer session.

Departmental Majors

Departmental Majors, unlike Field-of-Study Majors, are defined in terms of credit hours, required courses, and the attainment of a quality-point index of at least 2.50 in all second-group courses taken in the major field. The minimum specific requirements for Departmental Majors are listed below the staff of instruction of the department concerned. The Chairman of the Department, or designated departmental adviser, should be consulted at registration concerning the student's program of courses; and the entire program, including electives, must be approved by the Department. The student is also expected to consult the Chairman or adviser in all matters affecting his program of studies, such as changes, substitutions, or withdrawals, and especially concerning his progress in his courses. A close student-adviser relationship is desirable.

Departmental Majors are offered in the following: Anthropology; Applied Statistics; Art History and Theory; Biology; Botany; Chemistry; Classical Archaeology and Greek; Dramatic Art; Economics; Fine Arts; Geography; Geology; Germanic Languages and Literatures; Journalism; Latin; Mathematical Statistics; Mathematics; Music (Music History and Literature, Music Theory, Applied Music); Physics; Political Science; Psychology; Sociology; Speech; Speech Pathology and Audiology; Zoology.

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

In cooperation with the University Hospital and the Department of Pathology of the School of Medicine, Columbian College offers work leading to the degree of Bachelor of Science in Medical Technology, the fourth year of which (12 calendar months) is spent at the University Hospital.

A candidate for the degree must: (1) complete the Medical Technology curriculum in the lower division of Columbian College. (2) Fulfill the Columbian College requirements for the degree, including 30 semester hours of residence

(the junior year) in the upper division. In the junior year Biological Sciences 112 *Bacteriology* and 4 additional semester hours selected from second-group Zoology courses are required; it is recommended but not mandatory that the student select Biological Sciences 104 *Comparative Vertebrate Anatomy*, Biological Sciences 148 *Histology*, or Biological Sciences 164 *Vertebrate Physiology*. All or most of the remaining courses in the junior year should be selected from nonscience courses, i.e., social studies, arts, etc. (3) Complete the 12-month Medical Technology Course in the University Hospital (senior year), which constitutes the major, with an attainment of a quality-point index of 2.50.

Each candidate must make application to take the 12-month Medical Technology Course at the University Hospital; this should be done early in the junior year. While admission to the Columbian College degree program does not assure acceptance into the Medical Technology Course, George Washington University students are given preference.

A number of scholarships are provided by the University Hospital for the students enrolled in the fourth (senior) year of the degree program.

For further information concerning the Medical Technology program call 331-6386.





GRADUATE SCHOOL OF ARTS AND SCIENCES

Dean A.E. Burns

Assistant Dean W.F.E. Long

FACULTY AND CONSULTANTS IN RESEARCH ACADEMIC YEAR 1967-68

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A.J. Zuchelli

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HISTORY AND ORGANIZATION

The Graduate School of Arts and Sciences is responsible for advanced study and research leading to Master's degrees and the degree of Doctor of Philosophy in the arts and sciences. Graduate programs at The George Washington University were first formally organized under a Graduate School in 1905, following several decades of gradual growth in a number of departments. In 1930 the Graduate School was discontinued. Columbian College, the University's

liberal arts college, then assumed responsibility for the Master of Arts and Master of Science degrees, and a newly created Graduate Council administered all Doctor of Philosophy programs. Professional schools took responsibility for advanced degrees in the professional fields.

In 1966 the Graduate Council and the Graduate Division of Columbian College were consolidated into a new Graduate School of Arts and Sciences. All graduate programs in the arts and sciences leading to the degrees of Master of Arts, Master of Fine Arts, Master of Music, Master of Science, and Doctor of Philosophy are under the Graduate School.

The School is under the direction of the Graduate Faculty of Arts and Sciences. It is the responsibility of the Faculty to set the requirements for admission to the School, to provide courses and programs of study and research for its students, to establish academic standards for its degrees, to recommend to the Board of Trustees the awarding of degrees, to lay down regulations as needed for the operation of the School, and generally to supervise its activities.

The administration of the School is vested in the Dean, who is Chairman of the Dean's Council, which is responsible to the Faculty of the School for all policy matters. The President of the University and the Vice President for Academic Affairs are *ex officio* members of the Faculty and the Dean's Council.

ADMISSIONS REQUIREMENTS

Application forms for admission to graduate study are obtained from the Office of the Dean of the Graduate School of Arts and Sciences. When completed, these application forms must be submitted to this Office, together with college transcripts and letters of reference.

Applicants must have academic backgrounds of excellence, usually with majors, or equivalent, in the fields in which they intend to study for advanced degrees. Normally, at least a *B* average from an accredited college is required. With evidence of special promise, such as high Graduate Record Examination scores, an applicant may be accepted whose academic record falls short of *B*. The minimum does not assure automatic acceptance. The departments may, and often do, set higher admissions standards. Moreover, the number of spaces available for new graduate students limits the number that can be accepted. Students who apply in their senior year must have completed their baccalaureate work before registration in the Graduate School.

Application for First-year Graduate Study.—College seniors should apply within a week or two following the close of their fall term to be considered for admission to the Graduate School the following fall. Later application diminishes the prospects for admission in the fall semester.

Applicants with Bachelor's degrees should apply four months or more before the semester for which they seek admission.

Application for Advanced Standing.—Applicants who hold a Master's degree or who have the equivalent of a Master's degree in graduate course work may apply for admission as transfer students seeking advanced standing toward the degree of Doctor of Philosophy. These applications should be filed four months or more in advance of the semester for which admission is sought.

Readmission.—A student seeking readmission to a graduate program may be required, at the discretion of his department, to take a qualifying examination or extra graduate work.

REGULATIONS

Regulations regarding REGISTRATION, FEES AND FINANCES are stated on pages 21-30; other University regulations, on pages 40-46.

SCHOLARSHIP REQUIREMENTS

Grades for graduate work are: *A*, excellent; *B*, good; *C*, pass; *F*, failure; *I*, incomplete; *W*, authorized withdrawal; *CR*, credit.

An average of *B* or better is required for all graduate students. A higher average may be required by some departments. The grade of *C* is not considered as failing but must be counter-balanced by a grade of *A* in a graduate course of equal status.

A graduate student who receives a grade of *F* is required to present written cause (counter-signed by his Department) for consideration by the Graduate School as to why he should be allowed to continue his studies.

The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Graduate School. An "incomplete" which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course. The symbol *W* indicates authorized withdrawal.

DEGREES

Listed below are the degree programs of the Graduate School of Arts and Sciences and the specific degrees offered, by field. The programs are directed by the departments concerned. Degree programs which bridge two or more departments are directed by committees composed of members of the departments concerned. For further information write to the Dean or the chairman of the department concerned.

The graduate course work offered in support of these degrees is shown by department in this CATALOGUE.

Continuous Registration.—Students must maintain continuous registration while working toward the degree. If they fail to do so they are dropped from the degree program unless leave is granted by the Graduate School. Leave is granted only for good cause.

Fields	Degrees Offered
I. Humanities	
American Literary and Cultural History	M.A.
American Literature	Ph.D.
American Thought and Culture	Ph.D.
Art:	
Ceramics	M.F.A.
Graphics	
Painting	
Sculpture	
Art History and Criticism	M.A.
Dramatic Art	M.F.A.

Fields	Degrees Offered
English and American Literature	M.A.
English Literature	M.A. Ph.D.
French Language and Literature	M.A. Ph.D.
Germanic Languages and Literatures	M.A. Ph.D.
Linguistics	M.A.
Musculogy	M.A.
Music:	Mus.M.
Applied Music	
Conducting	
Music Composition	
Music Theory	
Musculogy	M.A.
Philosophy	M.A.
Religion	M.A.
Religious Education	M.A.
Russian Language and Literature	M.A.
Spanish American Literature	M.A. Ph.D.
Spanish Language and Literature	M.A. Ph.D.
II. Social Sciences	
Anthropology	M.A.
Economics	M.A. Ph.D.
Geography	M.A.
History	M.A. Ph.D.
*International Relations	Ph.D.
Latin American Studies	M.A.
Political Science	M.A. Ph.D.
Sociology	M.A. Ph.D.
III. Physical and Mathematical Sciences	
Applied Statistics	M.S.
Chemistry	M.S. Ph.D.
Geochemistry	M.S. Ph.D.
Geology	M.A., M.S. Ph.D.
Mathematical Statistics	M.A. Ph.D.
Mathematics	M.A. Ph.D.
Physics	M.A. Ph.D.
IV. Biomedical and Related Sciences	
Anatomy	M.S. Ph.D.
Biochemistry	M.S. Ph.D.
†Biological Sciences	M.S. Ph.D.
Biophysics	Ph.D.
Human Ecology	Ph.D.
Microbiology	M.S. Ph.D.
Pathology	Ph.D.
Pharmacology	M.S. Ph.D.
Physiology	M.S. Ph.D.
Psychology	M.A. Ph.D.
Speech Pathology and Audiology	M.A.

*The School of Public and International Affairs offers a Master of Arts field in International Affairs.

†Biology, Botany, and Zoology.

COMBINED MASTER OF SCIENCE AND DOCTOR OF MEDICINE

Students in the School of Medicine who wish to apply for the combined degree of Master of Science and Doctor of Medicine must meet the requirements for admission to the Graduate School of Arts and Sciences. They must be recommended by the chairman of the department and the deans of the Graduate School of Arts and Sciences and the School of Medicine.

The Master of Science program consists of a minimum of 30 semester hours of credit. A maximum of 12 semester hours of credit for graduate level courses completed as a part of the medical curriculum (and not already applied toward the Bachelor's degree) will be allowed in fulfillment of the requirements of the Master of Science degree.

REQUIREMENTS FOR THE DEGREES**THE MASTER'S PROGRAMS**

The *minimum* requirements for the Master's programs are as follows:

1. *Academic Program.*—The academic program for each candidate must be approved by the appropriate department, or by interdepartmental advisers, and filed in the Office of the Graduate School no later than November 1 for candidates entering in the fall semester or the summer sessions, or March 15 for candidates entering in the spring semester. The minimum program requirement is 24 semester hours of approved graduate course work, plus completion of a thesis, which counts as an additional 6 semester hours. Departments may set requirements above this minimum.

2. *Residence.*—The minimum of 30 required semester hours must be taken in the Graduate School, except that, upon approval, some portion of this requirement may be taken in another degree-granting school of this University.

3. *Academic Work Load.*—Full-time students are normally expected to take 12 semester hours each semester and to complete the degree requirements in no more than 3 semesters. Part-time students are normally expected to take 6 semester hours each semester and to complete the degree requirements in no more than 6 semesters. No more than 15 semester hours may be taken during any one semester. All work toward Master's degrees must be completed within three years of initial registration.

4. *Foreign Language Requirement.*—With the exception of candidates for the degree of Master of Fine Arts, each Master's candidate, before he completes 15 semester hours, must pass a reading examination in a foreign language or register for and successfully complete a language reading course for non-major students. The language selected by the candidate must be approved by his department. No candidate is permitted to take any language reading examination or register for any language reading course more than 3 times. A candidate whose major field is a foreign language or literature or whose native language is other than English may not select the language of the major or the native tongue to meet this requirement.

5. *Thesis.*—The completion of an approved thesis is required. Two copies of the completed thesis must be submitted to the Office of the Graduate School by the date announced in the University calendar, along with a certification of approval signed by the thesis director and at least one other departmental

reader. The thesis must meet the form, style, and other requirements which are set forth in regulations available in the Office of the Graduate School.

Students are normally expected to complete the thesis during the period of registration for thesis. If additional time is needed, a period of one calendar year may be granted for good cause with the permission of the Department and the Graduate School. If permission is granted, the candidate must maintain continuous registration during that year; if the thesis is not completed within that year, the candidate must reregister for 6 semester hours of thesis.

6. *Master's Comprehensive Examination.*—Master's degree candidates must pass a Master's Comprehensive Examination in the major subject. Examinations are held on dates fixed by the departments, but in no case later than January 15 for the fall semester, May 15 for the spring semester, or August 26 for the summer sessions. A candidate who fails to pass the Master's Comprehensive Examination may, in exceptional circumstances and with the approval of the Department and the Dean's Council, repeat the examination, but only after the lapse of one semester. If he fails a second time, no further opportunity to take the Examination is permitted.

THE DOCTOR OF PHILOSOPHY PROGRAM

The *minimum* requirements for the doctoral program are as follows:

1. *Academic Program.*—The academic program for each candidate must be approved by the appropriate department, or by interdepartmental advisers, and filed in the office of the Graduate School no later than November 1 for candidates entering in the fall semester or the summer sessions, or March 15 for candidates entering in the spring semester. A minimum of 48 semester hours of graduate work beyond the baccalaureate, or 24 semester hours of work beyond the Master's degree, is required prior to completion of the General Examination.

2. *Residence and Advanced Standing.*—Up to 24 semester hours of superior and recent graduate work may be transferred toward the doctoral degree requirement from a degree program in another institution, if approved by the Department and the Dean. Appropriate courses taken in a Master's program at this University may also apply to this requirement. All other work must be completed in residence in the Graduate School as a Candidate for the doctoral degree.

3. *Academic Work Load.*—During the initial 48-semester-hour course requirement prior to the General Examination, part-time doctoral students are expected to register for 6 semester hours each semester; full-time students are expected to register for 12 semester hours. See below for regulations governing the academic work load during the dissertation phase of doctoral study.

4. *Foreign Language and Optional Requirements.*—The foreign language requirement and related options are as follows:

- (a) two language reading examinations; or
- (b) one such language reading examination and tested proficiency in mathematics, statistics, or computer programming as a substitute for the second language; or
- (c) high-level proficiency in one foreign language which is not the mother tongue.

The Doctoral Program Committee and the student make the choice most appropriate for the circumstances.

5. *The General Examination.*—No later than the semester following the completion of the course requirements stated above, the student is required to take the General Examination in a number of fields. In some departments, one or two of the field examinations which constitute the General may be "written off" by completion of a year course with a special examination covering the subject. In a sense, these may be considered the "minor" fields of the General Examination. The examinations in the remaining fields (in some departments in all fields) are from 5 to 6 hours in length and are taken after the completion of the 48-semester-hour course requirement beyond the baccalaureate. The cumulative examination system is in effect in the fields of Chemistry and Physiology.

6. *Academic Work Load for the Dissertation.*—After completion of the 48-semester-hour course requirement beyond the baccalaureate and passing of the General Examination, students register in a "Dissertation Research" course. The minimum number of semester hours required for "Dissertation Research" is 24. Each semester, part-time doctoral students must register in this course for 6 semester hours; full-time students for 12 semester hours. If the dissertation is not completed by the end of the period in which the student has registered for the required 24 semester hours, he must register again each subsequent semester for 3 semester hours of "Dissertation Research" until the dissertation is finished and the oral examination passed.

7. *The Dissertation.*—The doctoral dissertation is required of all candidates as evidence of ability to perform scholarly research and to interpret its results. The candidates' dissertation subject and plan must be approved by his Director of Research and two members of the General Examination Committee, after the General Examination is passed and before actual research is begun.

No later than the date specified in the University calendar, the candidate must submit to the Dean two complete copies of the dissertation and an Abstract for inclusion in the announcement of the examination and for reproduction by University Microfilms, Inc.

When the dissertation has been approved by the Director and two other department members, and filed with the Dean, the candidate is given an oral examination which is open to the public. The committee of examiners is composed of Graduate School Faculty in the relevant discipline and, normally, two outside scholars from other universities or research organizations. If the candidate passes, the Graduate School recommends him for the degree of Doctor of Philosophy.

Printed copies of detailed regulations regarding the form and reproduction of dissertations are available in the Office of the Dean.

POSTDOCTORAL STUDY

George Washington University doctoral graduates may continue any studies at the University without payment of tuition, and enjoy all University library privileges. Such graduates are required to pay only the usual "continuous registration" fee in order to establish their active membership in the University. The use of laboratory space and equipment is contingent upon availability, and the cost of all laboratory or special library material is paid by the graduate. Special arrangements for such privileges must be made with the Dean well before the semester in which the graduate wishes to register. Postdoctoral work

taken under this privilege may not be applied toward any degree offered by the University.

FELLOWSHIPS, ASSISTANTSHIPS, TRAINEESHIPS

A limited number of teaching fellowships are assigned annually to certain departments of instruction open to students registered in the Graduate School of Arts and Sciences. In many departments of instruction graduate assistants are appointed to assist in the academic program. Applicants for teaching fellowships and graduate assistantships should inquire directly of the chairman of the department concerned regarding vacancies, details of appointment, and the kind of personal data to be supplied for consideration. Appropriate forms are available at the Office of the Graduate School.

In addition, the Graduate School of Arts and Sciences has a number of fellowships. Applicants should write directly to the Dean for information and application forms.

The University is participating in the following Government Fellowship Programs: National Aeronautics and Space Administration Predoctoral Traineeships, National Science Foundation Traineeships, United States Public Health Service Training Grants, and National Defense Education Act (Titles IV and VI) Fellowships. Qualified students should write directly to the Dean of the Graduate School of Arts and Sciences for information and applications for these Fellowships.

Completed applications for all fellowships, assistantships, or traineeships must be filed by March 1. Scores on the Graduate Record Examination are required.





SCHOOL OF EDUCATION

Acting Dean B.S. Root
Assistant Dean R.E. Baker

FACULTY—ACADEMIC YEAR 1967-68

Professors J.G. Allee, Jr., G.L. Angel, R.E. Baker, Perry Botwin, Elizabeth Burtner, W.T. Carroll, Mary Ellen Coleman, J.T. Dailey (*Research*), V.J. DeAngelis, H.G. Detwiler, R.G. Hanken, Thelma Hunt, Martha Rashid, B.S. Root, Carol St. Cyr, Daniel Sinick, Loretta Stallings
Associate Professors J.S. Aven (*Research*), J.G. Boswell, Marcella Brenner, Bertice Cornish, R.W. Eller, Lyndale George, Eva Johnson, Virginia Kirkbride, A.D. Kirsch, C.O. McDaniels, Margaret McIntyre, Leonard Nadler, Jeanne Snodgrass, Maida Withers
Assistant Professors Donna Abbey, Gayle Clapp, R.S. Cottrell, Jr., Carla Heymsfeld, R.J. Hornleek, Gloria Horrworth, Margaret Kiley, Donald Linkowski, Dorothy Moore, Margaret Moss, Honey Nashman, C.A. Neyman, Jr. (*Research*), Ruth Peterson, R.W. Prouty, C.B. Reed, Nan Smith, Clarke Trundle, M.G. Van Dyke, R.L. Williams, Lawrence Winkler
Instructors B.P. Berube, Kayte Fearn, Miriam Jaegerman, Nancy Johnson, S.J. Korcheck, Judith Leitner, Wretha Petersen, L.G. Usiskin, Judith Young

COMMITTEES*

THE DEAN'S COUNCIL†

1967: H.G. Detwiler, Margaret McIntyre
1968: Gloria Horrworth, C.O. McDaniels
1969: J.G. Boswell, Margaret Kiley

COMMITTEE ON GRADUATE STUDIES†

R.E. Baker (*Chairman*), G.L. Angel, J.G. Boswell, Perry Botwin, W.T. Carroll, H.G. Detwiler, Thelma Hunt, Virginia Kirkbride, A.D. Kirsch, C.O. McDaniels, Leonard Nadler, Martha Rashid, B.S. Root, Carol St. Cyr, Daniel Sinick, R.L. Williams

* The Dean and Assistant Dean of the School of Education are ex officio members of all committees.

† Elected by the Faculty.

COMMITTEE ON ADMISSION AND ADVANCED STANDING*

B.S. Root (*Chairman*), V.J. DeAngelis, J.Y. Ruth, Loretta Stallings

COMMITTEE ON SCHOLARSHIP

B.S. Root (*Chairman*), Perry Botwin, V.J. DeAngelis, Loretta Stallings

INTRODUCTION

It is the purpose of the School of Education to prepare teachers, counselors and administrators for the higher ranges of educational service and to offer experienced teachers opportunities to extend their education. The School includes the departments of Education, Physical Education, and Special Education. It offers both graduate and undergraduate work. Other departments of the University provide general education and subject-matter courses needed for a well-balanced program of teacher education. In addition to programs of study leading to the degrees, the School offers nondegree programs for certification and affiliates with the Washington School of Psychiatry in course offerings.

Individually planned programs are provided for liberal arts graduates and for housewives and retired military personnel with appropriate degrees who wish to prepare for teaching. The School also provides a wide range of courses of interest to emergency teachers who wish to qualify for teaching certificates and teachers who wish to renew licenses. Degree programs in selected areas of adult education are offered.

Laboratory and clinical facilities are provided by the University Reading Center and Speech and Hearing Clinic. In cooperation with public and private schools and a wide variety of social agencies, ample opportunity for field experience is provided.

In addition to a full schedule of weekday courses during the academic year, classes are offered in the evening, on Saturday, and during the summer for the convenience of teachers-in-service.

HISTORICAL DEVELOPMENT

The University began offering professional courses for teachers in 1904-5, and in 1907 it established a Division of Education. In 1909, the Division of Education became the Teachers College, which in its early years was concerned largely with teacher preparation on the undergraduate level.

In 1928, the Teachers College became the School of Education, and greater provision was made for advanced study. Graduate enrollment has steadily increased, and today the School has a considerably larger number of graduate than undergraduate students.

EDUCATION FOR TEACHERS

Programs are planned to provide a broad general education, adequate mastery of the content, and professional competence. The relative emphasis placed on each of these depends on the student's teaching-level plan. For example, ele-

* Appointed by the Dean.

mentary school teachers, since they teach all subjects, need preparation of greater breadth and less specialization than secondary school teachers.

Four years of full-time study is an acceptable minimum for adequate preparation for teaching. Five years terminating in a Master of Arts in Education degree are needed for superior preparation which will command higher salaries and opportunities for promotion. During the first two years, the student is registered in the lower division of Columbian College of Arts and Sciences, the liberal arts college of the University, where he acquires the background of general education so essential to success as a teacher. Here he is assigned a special adviser from the School of Education to assist in planning his program. The student may defer work toward the Master's degree until after a period of teaching; he may continue toward his Master's immediately after receiving his Bachelor's degree; or he may, on entering the School of Education in his junior year, register for the remaining three years of the five-year program leading to the simultaneous confirmation of the degrees of Bachelor of Arts in Education and Master of Arts in Education. The five-year program is advised, because it permits careful planning from the outset toward the student's teaching goal and adequate preparation in two teaching fields.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 21-30; other University regulations, on pages 40-46.

ACADEMIC WORK LOAD

Fifteen to 17 semester hours of credit constitute a normal program. A student with a quality-point index of 3.00 or higher may, with the permission of the Dean, enroll for 18 or 19 hours. No student may enroll for more than 19, except by permission of the Committee on Scholarship.

A student employed 15 hours or less a week may carry a normal program of college work.

A student employed from 16 to 25 hours a week may enroll for 12 or 13 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 15 or 16 hours.

A student employed from 26 to 34 hours a week may enroll for 9 or 10 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 12 or 13 hours.

A student employed 35 hours or more a week may enroll for 6 or 7 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 9 or 10 hours.

A student who increases his hours of employment after registration or at any time during a semester must report immediately to the Dean so that his program may be adjusted, if necessary.

The Bachelor's Degrees

THE SCHOOL OF EDUCATION OFFERS PROGRAMS leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education.

The program of each student must be approved by a Faculty adviser. Since each student's program is defined by his particular needs, it is important that the student have a clear concept of his major interest in education, and also that he be familiar with the teaching-certificate requirements of the locality in which he expects to teach.

ENTRANCE REQUIREMENTS

Bachelor of Arts in Education and Bachelor of Science in Physical Education.—The satisfactory completion of the appropriate curriculum in the lower division of Columbian College of Arts and Sciences (see pages 71–72); the equivalent from another accredited higher institution; or a certificate of graduation from an approved normal school or the equivalent is required. Applicants must have personality traits that give promise of success as a teacher.

REQUIREMENTS FOR THE DEGREES

To be recommended for a degree a student must satisfy the admission, residence, scholarship, and curriculum requirements.

RESIDENCE

Candidates for the Bachelor's degrees must complete satisfactorily while in the School of Education a minimum of 30 semester hours, 9 of which, with the approval of the adviser, may be in Off-campus courses of the College of General Studies.

For full details concerning continuous registration, see page 43.

SCHOLARSHIP

For the system of grading and of computing scholarship, see pages 40–41.

In order to graduate, a student must have a quality-point index of at least 2.00.

Probation.—A student who fails to maintain a quality-point index of at least 2.00 is placed on probation. He remains on probation as long as his index is below 2.00, or until his probation is removed by the Committee on Scholarship.

Suspension.—A student on probation who fails to raise his index to 2.00 within the time specified may be suspended.

A student suspended for poor scholarship may, within ten days, appeal his case to the Committee on Scholarship through the Dean. If the case appears to be remediable and the student seems likely to improve his scholarship, the Committee may readmit him on probation. A student denied readmission may, again, after a lapse of a calendar year, petition the Committee through the Dean for readmission. A student suspended twice will not be readmitted.

CURRICULUM REQUIREMENTS

In all Bachelor's curricula at least 30 semester hours must consist of courses numbered above 100.

CREDIT/NO CREDIT OPTION (see page 41)

BACHELOR OF ARTS IN EDUCATION

The objective of programs leading to the degree of Bachelor of Arts in Education is to provide (1) general educational backgrounds; (2) functional command of ideas, concepts, knowledge, and skills in one or more teaching fields; (3) mastery of basic professional information and skills adequate for the beginning teacher; and (4) development of attitudes needed for success in teaching.

The general educational backgrounds needed by prospective teachers are obtained through precollege education, college courses, work experience, leadership activities, student campus activities, and off-campus cultural opportunities.

Normally, from 65 to 67 semester hours of the total requirement are completed in the lower division of Columbian College of Arts and Sciences of this University or in an equivalent institution elsewhere. (See "Education," pages 71-72.) Since the teaching fields differ in content, scope, and complexity, some programs are longer than others. None requires less than 126 hours of satisfactory work, exclusive of required Physical Education.

Work experience, leadership activities, participation in student campus activities, and the utilization of off-campus cultural opportunities.—As part of formal course work and on their own initiative, students of the School of Education are expected to take full advantage of the many opportunities in the Washington area for developing leadership skills. Advisers are available to help students plan these experiences.

NATIONAL TEACHER EXAMINATIONS

All candidates for the degree of Bachelor of Arts in Education are required to take the National Teacher Examinations. Those expecting to graduate in June should take the examinations the previous February or April; those expecting to graduate in February, in July or November. Students expecting to complete degree requirements during the Summer Sessions should take the examinations in April or July.

Students receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. Students must request the Testing Service to send copies of test scores to the School of Education.

Students required to take the examinations must register for them in the Office of the Dean at least thirty days prior to the date of examination. Details concerning time, place, registration, and fees may be obtained in the Office of the Dean.

TEACHING-FIELD PREPARATION

Teaching-field preparation depends upon the teaching position for which the student is preparing. Those planning to teach in elementary schools need a degree of competency in several fields. Those preparing to teach in junior or senior high schools must demonstrate competency in a major teaching field. A minor teaching field is optional, but recommended. Ordinarily, students preparing to teach in evening schools for adults are required to prove competency in only one teaching field. The student should begin teaching-field preparation while in the lower division of Columbian College.

Teaching-field requirements include satisfactory completion of prescribed academic courses in one or more fields, a satisfactory score on the special field examination of the National Teacher Examinations* and satisfactory completion of the prescribed special methods courses.

Prescribed academic courses vary in number in accordance with the scope and complexity of the teaching field and the license requirements of the various states. Minimum academic course requirements for each major teaching field are listed on succeeding pages. Minor teaching-field requirements are somewhat less than those of a major field. Students preparing to teach on the elementary level are advised to use electives to increase their mastery of content in an academic field or an area of specialization, such as Physical Education.

The prescribed courses in special methods are concerned primarily with methods of initiating, guiding, and evaluating learning experiences dealing with the content of teaching fields. They attempt to bring to the student specific suggestions drawn from the accumulated experience of successful teachers. However, in addition, the courses review the teaching-field content currently in use in schools, and examinations at the end of courses provide the final test of competency in the teaching fields.

PREScribed COURSES IN THE VARIOUS TEACHING FIELDS

Art

	Semester
	Hours
Art 1: Art Appreciation.....	3
Art 31-32: Survey of Western Art, or	
Art 71-72: Introduction to the Arts in America.....	6
Art: To be selected from second-group Art History courses or	
any third-group Art History courses open to the under-	
graduate	6
Art: To be selected from the following.....	2
+ Art 21-22: Basic Design	
Art 41-42: Drawing I	
Art 51-52: Ceramics I	
Art 57-58: Printmaking I	
Art 65-66: Painting I	
Art 81-82: Sculpture I	
Art 121-22: Design: Structured	
Art 123-24: Design: Individual Problems	
Art 125-26: Painting II	
Art 127-28: Painting III	
Art 131-32: Ceramics II	
Art 139-40: Design Workshop	
Art 143-44: Serigraphy	

* Special field examinations of the National Teacher Examinations are available in elementary education; early childhood education, biology and general science; English language and literature; industrial arts; mathematics, chemistry, physics, and general science; social studies, physical education, business education; music education, home economics, and art education.

Students preparing to teach history or geography take the special field examination in social studies.

Students preparing to teach in fields in which special field examinations are not available (language and speech) must obtain a satisfactory score on a special field examination given by the instructor in the special methods course involved.

+ Art 21-22 or permission of Department Chairman is prerequisite to all other studio courses.

	Semester Hours
Art 151-52: Ceramics III	
Art 153-54: Printmaking II	
Art 157-58: Printmaking III	
Art 165-66: Painting, Drawing, Composition	
Art 175-76: Design Projects	
Art 179-80: Sculpture II	
Art 189-90: Sculpture III	
Total.....	42

Biology

B Sc 1-2: Introductory Biology.....	8
B Sc 101-2: Invertebrate Zoology.....	6
B Sc 104: Comparative Vertebrate Anatomy.....	4
B Sc 108: Organic Evolution, or	
B Sc 127: Genetics	3-4
B Sc 163: Human Physiology.....	3
B Sc: Advanced Botany courses as approved by the adviser.....	6
Chem 11-12: General Chemistry.....	8
Phys 1, 2: General Physics.....	8
Total.....	46-47

Chemistry

Chem 11-12: General Chemistry, or	
Chem 15-16: Intensive General and Analytical Chemistry.....	8
Chem 22: Elementary Quantitative Analysis.....	4
Chem 51-52: Organic Chemistry	6
Chem 53-54: Organic Chemistry Laboratory.....	2
Chem 111: Physical Chemistry.....	3
Chem 191: History of Chemistry.....	2
Math 6: Plane Trigonometry	3
Math 21: Calculus I.....	3
Phys 1, 2: General Physics.....	8
Total.....	39

Dance

Music: As approved by the adviser.....	4-6
PE 49: Human Anatomy	3
PE 50: Kinesiology	3
PE 56: Dance Technique and Theory.....	1
PE 107: Teaching Recreational Dance.....	2
PE 109: Dance Composition I.....	1
PE 110: Dance Composition II.....	1
PE 117: Teaching Modern Dance.....	3
PE 118: Dance Production.....	3
PE 119: Creative Dance for Children.....	3
PE 120: Repertory	1
PE 134: Rhythmic Analysis through Creative Movement.....	3

PE 135-36: Survey of Dance History.....
 Speech and Drama: As approved by the adviser.....
 Total.....

Semester
 Hours
 4-4
 38-40

Earth Science

B Sc 1-2: Introductory Biology.....
 Chem 11-12: General Chemistry.....
 Geol 1-2: Introductory Geology.....
 Geol 14: General Petrology.....
 Geol 101: History of Geological Sciences.....
 Geol 122: Structural Geology.....
 Geol 125: Marine Geology.....
 *Math 3: College Algebra.....
 *Math 6: Plane Trigonometry.....
 Phys 1: General Physics.....
 Other Courses: To be selected from the following as approved by the adviser.....
 Anth 186: Physical Anthropology.....
 Geol 128: Geomorphology.....
 Geol 141: Introductory Geochemistry.....
 Geol 151-52: Invertebrate Paleontology.....
 Geol 163: Sedimentation.....
 Geol 166: Principles of Stratigraphy.....
 Total.....

51

Elementary Education

Art: As approved by the adviser.....
 Geog 51: Introduction to Geography.....
 Geog 52: World Regions.....
 Hist 71-72: Civilization of the United States.....
 Math 9, 10: General Mathematics I, II.....
 Music: As approved by the adviser.....
 Physical Education: As approved by the adviser.....
 Science: As approved by the adviser.....
 Other Courses: To be selected from the following as approved by the adviser.....
 Anth 1-2: Introductory Anthropology.....
 †Econ 1-2: Principles of Economics.....
 Hist 39-40: European Civilization in Its World Context.....
 P Sc 5-6: Introduction to Political Science.....
 Soc 1-2: Introductory Sociology.....
 Total.....

42-45

* Additional mathematics is required for some advanced geology courses.
 † Recommended for students planning to apply for certification in Virginia.

English

	Semester Hours
Engl 1 or 1x, 2: English Composition.....	6
Engl 52: Introduction to English Literature.....	3
Engl 71-72: Introduction to American Literature.....	6
Engl 109: Expository Writing.....	3
Engl 125: Introduction to English Linguistics.....	3
Engl 135-36: Shakespeare	6
Sp&D 11: Voice and Diction.....	3
*Engl: To be selected from the following as approved by the adviser	9
Engl 151-52: The Romantic Movement	
Engl 161-62: Victorian Literature	
Engl 165-66: The 20th Century	
Engl 170: The American Short Story	
Engl 171-72: Studies in American Literature	
Engl 173-74: Major American Poets	
Engl 175-76: American Drama	
Engl 177-78: The American Novel	
Engl 182: The English Novel	
Engl 183-84: The English Drama	
Total.....	39

French

Fren 9-10: French Conversation and Composition.....	6
Fren 51-52: Survey of French Literature and Civilization.....	6
Fren 103-4: Problems of Pronunciation and Intonation.....	6
Fren 109-10: Advanced French Conversation and Composition.....	6
Fren 125-26: 19th Century French Literature.....	6
Fren 127-28: 20th Century French Literature.....	6
French: Additional courses as approved.....	6
Other Courses: Recommended from the following but not required.....	6
Art 109: 19th Century Art in Europe	
Art 110: Contemporary Art	
Engl 125: Introduction to English Linguistics	
Fren 119-20: 16th Century French Literature	
Fren 121-22: 17th Century French Literature	
Fren 123-24: 18th Century French Literature	
Foreign Lang: Other than French as approved	
Hist 141-42: History of France	
Psyc 115: Psychology of Language and Communication	
Total.....	42-48

General Science†

B Sc 1-2: Introductory Biology.....	8
Chem 11-12: General Chemistry, or	
Chem 15-16: Intensive General and Analytical Chemistry.....	8
Chem 22: Elementary Quantitative Analysis.....	4

* Not required for the minor teaching field.

† May not be chosen as a minor teaching field.

Phys 1, 2:	General Physics.....	
*Science:	Additional courses as approved by the adviser.....	
Math:	To be selected from the following.....	
Math 3:	College Algebra.....	
Math 6:	Plane Trigonometry.....	
Math 21, 22,		
23, 24:	Calculus I, II, III, IV.....	

Total.....

Geography

Geog 51:	Introduction to Geography.....	
Geog 52:	World Regions.....	
Geog 103-4:	Cartography.....	
Geog 105:	Weather and Climate.....	
Geol 1:	Introductory Geology.....	
†Geog:	To be selected from the following.....	
Geog 125:	Transportation Complexes.....	
Geog 126:	World Economic Geography.....	
Geog 127:	World Population and Settlement.....	
Geog 132:	Natural Resources.....	
Geog 134:	Location of Industry.....	
Geog 141:	Urban Settlement.....	
Geog 146:	World Political Geography.....	
†Geog:	To be selected from the following.....	
Geog 151:	United States and Canada.....	
Geog 153:	Europe.....	
Geog 155:	Africa.....	
Geog 161:	Latin America.....	
Geog 165:	Asia.....	
Geog 166:	Soviet Union.....	

Total.....

German

Germ 9-10:	German Conversation and Composition.....	
Germ 51-52:	Introduction to German Literature.....	
Germ 179-80:	Advanced Composition.....	
†German:	Additional courses as approved by the adviser.....	

Total.....

History

Hist 39-40:	European Civilization in Its World Context, or.....	
Hist 91-92:	World Civilizations.....	
Hist 71-72:	Civilization of the United States.....	
Hist:	Research Seminar (see adviser, Department of History).....	
Hist:	Six semester hours in each of three of the following groups.....	
	as approved by the adviser.....	

* Eighteen semester hours in one science field are required for certification.
 † Not required for the minor teaching field.
 ‡ May not be chosen as a minor teaching field.

	Semester Hours
* Hist: Additional semester hours from any one of the following groups as approved by the adviser.....	6
Total.....	42

GROUP 1: AMERICAN HISTORY

- Hist 167: American Colonial History
- Hist 169: The American Revolution
- Hist 170: U.S. Early National History
- Hist 171-72: U.S. Social History
- Hist 173: Representative Americans
- Hist 175-76: U.S. Political History
- Hist 177: The Ante-bellum South
- Hist 179-80: U.S. Economic History
- Hist 181-82: U.S. Diplomatic History
- Hist 183: Oversea Expansion of the United States

GROUP 2: EUROPEAN HISTORY

- Hist 109: Early Aegean and Greek Civilizations to 200 B.C.
- Hist 110: The Roman World to 455 A.D.
- Hist 111-12: Medieval History
- Hist 121: The Renaissance in Western Europe
- Hist 131-32: History of Germany
- Hist 139-40: World History in the 20th Century
- Hist 141-42: History of France
- Hist 145-46: History of Russia
- Hist 147: Economic History of Europe
- Hist 149-50: European Diplomatic History
- Hist 151-52: History of England and Great Britain
- Hist 153: Tudor England
- Hist 154: Stuart England
- Hist 157: 20th Century European Diplomatic History
- Hist 158: Modern Jewish History

GROUP 3: THE EASTERN WORLD

- Hist 145-46: History of Russia
- Hist 187: History of Modern China
- Hist 193: History of the Near East
- Hist 195-96: History of East Asia

GROUP 4: LATIN AMERICAN HISTORY

- Hist 162: History of Spain and Portugal
- Hist 163-64: History of Latin America
- Hist 165: History of Brazil
- Hist 166: History of Mexico
- P Sc 177: Governments and Politics in Latin America
- P Sc 178: Latin America: Political Patterns and International Relations

* Not required for the minor teaching field.

Mathematics

	Semester Hours
Math 21, 22, 23, 24: Calculus I, II, III, IV.....	12
Math 122: Introduction to Abstract Algebra.....	3
Math 124: Introduction to Matrix Theory.....	3
Math 135: Projective Geometry.....	3
*Math: Three additional courses in Mathematics approved by the adviser	9
Stat 155: Introduction to Probability.....	3
Total.....	33

Music

Mus 5-6: Elementary Harmony.....	6
Mus 103-4: History of Music.....	6
Mus 131-32: Advanced Harmony.....	6
Applied Music: Voice or major instrument.....	6
Applied Music: Minor instruments	6
Ensemble: Choral or Orchestral.....	3
Music Literature: As approved by the adviser.....	6
Music Theory: As approved by the adviser.....	3
Total.....	42

Physical Education†

B Sc 1-2: Introductory Biology	8
B Sc 163: Human Physiology.....	3
PE 41: Personal Health and First Aid (men).....	1-2
PE 45: Techniques of Physical Education Activities (men).....	3
PE 49: Human Anatomy.....	3
PE 50: Kinesiology	3
‡PE 51-52: Teaching Physical Education Activities (women).....	4
PE 101: Physical Education in the Elementary School.....	3
PE 107: Teaching Recreational Dance.....	1
‡PE 111-12: Teaching Physical Education Activities (women).....	4
‡PE 115-16: Intermural Program Organization (men).....	4
‡PE 117: Teaching Modern Dance (women).....	2
§PE 119: Creative Dance for Children (women).....	3
Total.....	24-31

Physics

Chem 11-12: General Chemistry.....	8
Math 21, 22, 23, 24: Calculus I, II, III, IV.....	12
Phys 1: General Physics.....	4
Phys 30: Introductory Modern Physics.....	4

* Not required for the minor teaching field.

† May be chosen as a minor field only, for Bachelor of Arts in Education. See pages 106-7 for requirements for the Bachelor of Science in Physical Education.

‡ Required only of those preparing to teach on the secondary school level.

§ Required only of those preparing to teach on the elementary school level.

	Semester Hours
Phys 31-32: Introduction to Theoretical Physics.....	4
Phys 51-52: Introduction to Experimental Physics.....	4
Phys: To be selected from the following.....	3
Phys 161: Mechanics I	
Phys 163: Optics	
Phys 164: Thermodynamics	
Phys 165: Electromagnetic Theory	
Phys 167: Modern Physics	
Total.....	39

Russian

Slav 9-10: Russian Conversation and Composition.....	6
Slav 91-92: Introduction to Russian Literature.....	6
Slav 125: Russian Linguistic Structure I.....	3
Slav 126: Russian Linguistic Structure II.....	3
Slav 131: 18th Century Russian Literature.....	3
Slav 141-42: 19th Century Russian Literature, or	
Slav 151-52: 20th Century Russian Literature.....	6
Slav 197: Special Problems in Teaching Russian.....	3
*Slav: Additional courses from the following as approved by the adviser	9
Slav 93-94: Introduction to Slavic (non-Russian) Literature	
Slav 101-2: Readings in Modern Russian	
Slav 109-10: Advanced Russian Conversation and Composition	
Slav 128: Dostoyevsky, the Man and the Artist	
Slav 143-44: The Russian Novel	
Slav 145-46: The Russian Short Story	
Slav 153: Turgenev	
Slav 154: Gogol	
Slav 156: Leo Tolstoy, His Life and Works	
Slav 161-62: Russian Culture	
Slav 165: Soviet Literature	
Total.....	39

Social Studies

Econ 1-2: Principles of Economics.....	6
Hist 39-40: European Civilization in Its World Context, or	
Hist 91-92: World Civilizations.....	6
Hist 71-72: Civilization of the United States.....	6
P Sc 5-6: Introduction to Political Science.....	6
Other Courses: To be selected from the following.....	6
Anth 1-2: Introductory Anthropology	
Geog 51: Introduction to Geography	
Geog 52: World Regions	
Soc 1-2: Introductory Sociology	
*Other Courses: Second-group courses, as approved by the adviser, from Anthropology, Economics, Geography, History, Political Science, and Sociology.....	12
Total.....	42

* Not required for the minor teaching field.

Spanish

Span 9-10:	Spanish Conversation and Composition.....	6
Span 51-52:	Survey of Spanish Literature and Civilization.....	6
Span 103:	Problems of Pronunciation and Intonation.....	3
Span 109-10:	Advanced Spanish Conversation and Composition.....	6
Span 125-26:	Modern Spanish Literature.....	6
Span 127-28:	Contemporary Spanish Literature.....	6
Span:	Additional Spanish courses as approved.....	6
Other Courses:	Recommended from the following but not required.....	6
Engl 125:	Introduction to English Linguistics.....	
Foreign Lang:	Other than Spanish as approved.....	
Hist 162:	History of Spain and Portugal.....	
Hist 163-64:	History of Latin America.....	
Hist 165:	History of Brazil.....	
Hist 166:	History of Mexico.....	
Psyc 115:	Psychology of Language and Communication.....	
Span 121-22:	Spanish Literature of the Golden Age.....	
Span 123-24:	Cervantes: Don Quijote.....	
Span 151-52:	The Spanish American Novel.....	
Span 155-56:	Spanish American Literature to 1880.....	
Span 157-58:	Spanish American Literature since 1880.....	

Total..... 39-45

Special Education*

S Ed 201:	Education of Exceptional Children.....	3
S Ed 202:	Nature and Needs I: the Mentally Retarded.....	3
S Ed 203:	Teaching Mentally Retarded Children.....	3
S Ed 204:	Nature and Needs IV: the Culturally Disadvantaged.....	3
S Ed 290:	Practicum in Teaching Mentally Retarded Children.....	6

Total..... 18

Speech and Drama

Sp&D 1:	Effective Speaking.....	3
Sp&D 2:	Persuasive Speaking.....	3
Sp&D 11:	Voice and Diction.....	3
Sp&D 32:	Oral Reading.....	3
Sp&D 101:	Phonetics.....	3
Sp&D 121:	Group Discussion and Conference Leadership.....	3
Sp&D 153:	Acting.....	3
Sp&D 171:	Introduction to Speech Pathology and Audiology.....	3
Area of Specialization:	Selected from one of the following groups as approved by the adviser.....	12

Total..... 36

* Minor teaching field only. Majors in secondary education may combine with a minor teaching field in special education; majors in elementary education may choose an area of specialization in special education.

***GROUP 1: SPEECH**

- Sp&D 102: Oral Interpretation of Literature
 Sp&D 126: Public Discussion and Debate
 Sp&D 127-28: Advanced Debate Practice
 Sp&D 141: Public Speaking: Advanced Forms
 Sp&D 172: Speech Pathology I
 Sp&D 173: Speech Pathology II
 Sp&D 176: Speech, Hearing, and Language Development
 Sp&D 182: Hearing Problems and Testing of Hearing

***GROUP 2: DRAMA**

- Sp&D 102: Oral Interpretation of Literature
 Sp&D 133-34: Radio and TV Broadcasting
 Sp&D 151-52: Stagecraft
 Sp&D 154: Play Direction
 Sp&D 155-56: Play Production Practice
 Sp&D 165-66: History of the Theater
 Sp&D 169: Creative Dramatics
 Sp&D 170: Children's Theater
 Other Courses: English, Psychology, or Speech and Drama as approved
 by the adviser

PROFESSIONAL EDUCATION

The basic professional information, skills, and attitudes needed by beginning teachers are provided through a sequence of courses to be taken in the junior and senior years. Lectures and class discussions are closely coordinated with field work. Instruction is differentiated to meet the needs of those preparing to teach on the various levels—elementary school, junior high school, senior high school, and adult.

Professional Courses—Secondary

	Semester Hours
Educ 108: Human Development, Learning, and Teaching.....	3
Educ 112: Educational Measurement, or	
Stat 53: Introduction to Statistics in Psychology and Education.....	3
Educ 123: Society and the School.....	3
Educ 131: Secondary School Principles and Methods.....	3
Educ 134: Student Teaching in Secondary Schools.....	6-9
Special Methods: Three to six semester hours from the following courses....	3-6
Educ 136: Teaching English in Secondary Schools	
Educ 137: Teaching Speech	
Educ 138: Teaching Social Studies in Secondary Schools	
Educ 139: Teaching Art in Secondary Schools	
Educ 140: Teaching Mathematics in Secondary Schools	
Educ 141: Teaching Latin	
Educ 142: Teaching Music in Secondary Schools	
Educ 144: Teaching Science in Secondary Schools	
Educ 146: Teaching Foreign Languages	

Total..... 21-27

* Not required for the minor teaching field.

Professional Courses—Elementary

	Semester Hours
Educ 108: Human Development, Learning, and Teaching.....	3
Educ 111: Elementary School Curriculum and Methods.....	15
Educ 112: Educational Measurement, or Stat 53: Introduction to Statistics in Psychology and Education.....	3
Educ 123: Society and the School.....	3
Educ 135: Student Teaching in Elementary Schools.....	9
Total.....	33

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION *

These curricula, which are designed to prepare students for teaching in elementary and secondary school programs of physical education, offer opportunity for specialization in dance, adapted physical education, and health education.

The student wishing to prepare to teach another subject in addition to physical education may use his elective hours to work toward a minor teaching field. Relevant work in Columbian College may be counted.

The minimum requirement for the Bachelor of Science in Physical Education degree is 66 semester hours.

PREREQUISITE

For the first two years of the Bachelor of Science in Physical Education curricula, see Columbian College of Arts and Sciences, page 72.

CURRICULUM FOR MEN

Junior Year

	Semester Hours
B Sc 163: Human Physiology	3
Educ 108: Human Development, Learning, and Teaching.....	3
Educ 123: Society and the School.....	3
PE 105: Adapted Physical Education and Physical Examinations.....	3
PE 107: Teaching Recreational Dance.....	1
PE 113-14: Practice in Teaching Activities.....	6
PE 121: School and Community Health Programs.....	3
PE 122: Methods and Materials for Health Education.....	3
PE 158: Safety Education	3
Elective or minor teaching field:	9
Total.....	33

* Physical Education may also be chosen as a minor teaching field by candidates for the degree of Bachelor of Arts in Education, see page 102.

Senior Year

	Semester Hours
Educ 131: Secondary School Principles and Methods.....	3
Educ 134: Student Teaching in Secondary Schools.....	6-9
PE 101: Physical Education in the Elementary School.....	3
PE 103: History and Principles of Physical Education.....	3
PE 115-16: Intramural Program Organization.....	4
PE 131: Tests and Measurements in Physical Education.....	3
PE 138: Organization and Administration of Physical Education....	3
PE 164: Physiology of Exercise.....	3
Elective or minor teaching field:	2-5
Total.....	33

CURRICULUM FOR WOMEN**Junior Year**

B Sc 163: Human Physiology.....	3
Educ 108: Human Development, Learning, and Teaching.....	3
Educ 123: Society and the School.....	3
PE 101: Physical Education in the Elementary School.....	3
PE 105: Adapted Physical Education and Physical Examinations....	3
PE 107: Teaching Recreational Dance.....	1
PE 111-12: Teaching Physical Education Activities.....	4
PE 117: Teaching Modern Dance.....	2
PE 121: School and Community Health Programs.....	3
PE 122: Methods and Materials for Health Education.....	3
Elective or minor teaching field:	6
Total.....	34

Senior Year

Educ 131: Secondary School Principles and Methods.....	3
Educ 134: Student Teaching in Secondary Schools.....	6-9
PE 103: History and Principles of Physical Education.....	3
PE 113: Practice in Teaching Activities.....	3
PE 131: Tests and Measurements in Physical Education.....	3
PE 138: Organization and Administration of Physical Education....	3
PE 164: Physiology of Exercise.....	3
Elective or minor teaching field:	5-8
Total.....	32

The Degree of Master of Arts in Education

PROGRAMS OF STUDY LEADING TO THE DEGREE of Master of Arts in Education are designed to enable prospective teachers and teachers of experience to in-

crease their knowledge of professional and academic information and skills and prepare for special types of educational service. They also provide opportunities for college graduates in other disciplines to acquire needed professional education, as well as study in the subjects which they are planning to teach.

From the various related departments of the University, the student and his adviser select courses to give the student an adequate background in his chosen field of service. Programs for teachers-in-service and experienced teachers planning to re-enter the profession are differentiated from those for students without teaching experience.

Master's programs are available in the following fields: (1) adult education; (2) classroom teaching; (3) comparative education; (4) curriculum; (5) early childhood education; (6) elementary education; (7) employee training; (8) guidance; (9) history of education; (10) human growth and development; (11) philosophy of education; (12) physical education (candidate may specialize in adapted physical education or dance education); (13) reading; (14) rehabilitation counseling; (15) school administration; (16) secondary education; (17) special education—mentally retarded, emotionally disturbed, physically handicapped, and disadvantaged; and (18) student personnel work in higher education.

For teachers interested in developing or strengthening their academic competence, the "classroom teaching" field normally permits 15 to 18 semester hours of work in departments other than education. These programs are designed to meet the needs of teachers-in-service who need additional work in content to qualify for advanced certification or to improve their classroom skills; and may also be helpful to previously trained teachers planning to re-enter the profession. The major emphasis is upon strengthening both the academic and professional competencies of the teacher.

Additional information concerning these programs may be obtained by writing or telephoning the Dean.

FIVE-YEAR PROGRAM

A candidate entering the School of Education from the lower division of Columbian College of Arts and Sciences (or with equivalent preparation) may choose a three-year program leading to the degrees of Bachelor of Arts in Education and Master of Arts in Education to be conferred simultaneously. The first year of this combined program will be devoted to teaching-field preparation; the work of the second year will include the degree of Bachelor of Arts in Education junior-year professional courses and a maximum of 18 semester hours of graduate courses; that of the third and final year, senior-year undergraduate professional courses and the remaining graduate courses needed for the Master's degree. Student Teaching, to be elected in the third year, may not be taken for graduate credit. A quality-point index of at least 2.50 in undergraduate courses must be attained before beginning the work of the senior year, and the program must meet all the requirements for the degrees of Bachelor of Arts in Education and Master of Arts in Education.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited institution; an undergraduate quality-point index of 2.50 or above (C+ average); demonstrated interest in teaching.

and personality traits that give promise of better-than-average success as a teacher.

Two years of successful teaching are required before admission to candidacy in the fields of guidance and school administration.

ADMISSION TO CANDIDACY

Candidates whose undergraduate preparation does not include equivalents of the basic requirements of the degree of Bachelor of Arts in Education must make up deficiencies and may be required to take designated tests.

ADVANCED STANDING

For the record, advanced standing is granted for approved courses taken at other accredited institutions, but a minimum of 30 semester hours must be completed at this University as a Master's candidate.

A maximum of 12 semester hours of advanced courses completed in this University in excess of the requirements for the Bachelor's degree may be credited toward the Master's degree if the work fits in with the student's plan of specialization and is approved in writing by the Dean before being undertaken.

Advanced standing is not granted for work completed five or more years before application for admission or readmission to Master's candidacy.

REQUIREMENTS FOR THE DEGREE

PLAN OF STUDY

The plan of study leading to the degree of Master of Arts in Education requires a minimum of 33 hours of graduate credit. The plan may, at the student's option, include a thesis carrying 6 hours of graduate credit. Whether or not a student selects the thesis option, a minimum of 18 hours, including a course in educational research methods and procedures, must be from courses planned primarily for graduate students (third-group courses). A minimum of 12 hours, not including the thesis or the research course, must be from courses offered by the School of Education.

Programs may include additional teaching-field preparation. In such cases, however, undergraduate and graduate courses combined must be at least equivalent to the undergraduate requirements for the degree of Bachelor of Arts in Education (see pages 94-106).

Programs are planned initially in conference with an admission adviser in the Office of the School of Education and subsequently with a designated adviser in the candidate's area of specialization. These programs are based on the interests of the candidate, his previous background, and the certification requirements of the state and locality in which the candidate plans to teach.

All degree requirements must be completed within a period of six years.

RESIDENCE

The satisfactory completion of 30 semester hours as a candidate for the degree is required. With the approval of the adviser, 9 of the 30 hours may be off-campus courses in the College of General Studies.

SCHOLARSHIP

For graduate work grades are indicated as: *A*, excellent; *B*, satisfactory (graduate level); *C*, passing; *F*, failing; *I*, incomplete; *W*, authorized withdrawal; *CR*, credit. Grades *A*, *B*, *C*, and *F* are counted in computing the quality-point index (see page 41).

A quality-point index of 3.00 is required for graduation. Students who receive the grade of *C* in more than two courses are subject to suspension. Students who receive a grade of *F* must confer with the Dean of the School of Education before enrollment for further work.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course.

THE THESIS

The choice of the thesis subject must be approved in writing by the student's adviser and filed in the Office of the Dean. A statement of the School of Education standards for the thesis and printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the period of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional calendar year may be granted without further tuition payment. The student must, however, maintain continuous registration (see page 43) during this period. If the preparation of the thesis extends beyond the additional calendar year, the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

MASTER'S COMPREHENSIVE EXAMINATION

In addition to the course examinations, the candidate must pass a special three-hour examination on his area of specialization. Candidates for the examination must be registered for the semester it is to be taken, and must file a written application in the Office of the School of Education no later than thirty days prior to the date of the examination.

The Degree of Education Specialist

THE SCHOOL OF EDUCATION PROVIDES A PROGRAM of advanced study leading to the degree of Education Specialist for students with Master's degrees in Education who seek further professional preparation for specific objectives.

ENTRANCE REQUIREMENTS

The degree of Master of Arts in Education from this University, or the equivalent; a satisfactory score on the Miller Analogies Test or the Graduate Record Examination; and two years of successful pertinent experience.

ADMISSION TO CANDIDACY

Each applicant must be interviewed and recommended by a staff member of the School of Education or by a representative in the candidate's locality appointed by the Dean.

SCHOLARSHIP

Scholarship requirements for the degree of Education Specialist are the same as those for the degree of Master of Arts in Education, see page 110.

PROGRAMS OF STUDY AND DEGREE REQUIREMENTS

Individual programs are developed, through the faculty-adviser plan, to fit the candidates' abilities, interests, needs, and career goals. Thirty semester hours beyond the requirements of the degree of Master of Arts in Education at this University are required. At least 21 hours of this work must be taken on campus at this University. A maximum of five calendar years is allowed for completion of the program.

At least 12 of the required 30 hours must be in appropriate graduate courses in Education selected from the following areas: (1) foundations and cognate study, (2) background and general principles of the field of study, (3) an area of specialization.

THE COMPREHENSIVE EXAMINATION

Successful completion of two three-hour written examinations is required.

THE ORAL EXAMINATION

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination committee consists of members of the staff of the School of Education and at least one successful practitioner in the appropriate area of specialization, appointed by the Dean of the School of Education.

The Degree of Doctor of Education

THE SCHOOL OF EDUCATION OFFERS PROGRAMS of advanced study leading to the degree of Doctor of Education. These programs, which are under the supervision of the Committee on Graduate Studies, provide major fields of study in elementary education, secondary education, adult education, human growth and development, history of education, philosophy of education, administration and supervision, elementary administration, secondary administration, curriculum,

special education, guidance and counseling, teacher education, and employee development. Supporting fields are available in higher education, comparative education, administrative specialties, and student personnel work in higher education. With the approval of the Committee on Graduate Studies and of the departments concerned, one or two supporting fields may be taken in other departments of the University. All programs require study of interrelated areas of education and a doctoral dissertation in the major field of study. In general, from two to three years of full-time study beyond the degree of Master of Arts in Education, or the equivalent in part-time study, is required. Programs are individually planned. It is estimated that, for the average student, the work required for the total program will be 66 semester hours.

Students who have completed the comprehensive examination and who were not registered for doctoral study under the payment plan in effect prior to July 1, 1967, are required to register for a minimum hour-load (see page 27).

Each program is divided into two parts. The first consists of preparation for comprehensive examinations in each of four supporting fields and a major field of study. The second is composed of research investigation, the writing of a dissertation, and the final oral examination.

ADMISSION

The applicant must have adequate preparation for advanced study, including graduate work in fields prerequisite to his objective equivalent to that required for the degree of Master of Arts in Education at this University, at least three years of successful pertinent educational experience, acceptable personal qualities, and a capacity for creative scholarship and effective leadership.

The applicant first arranges for an interview with the Assistant Dean for advanced graduate studies to explore his needs in relation to the resources of the School and to guide him in his application for doctoral study.

To be admitted to study for the degree, the applicant must be accepted by the Committee on Graduate Studies on the basis of previous scholastic and professional record; prescribed admission tests, including the Aptitude Test of the Graduate Record Examination or the Miller Analogies Test; personal conferences with at least three faculty members, including the professor under whom the applicant wishes to work; and a group interview with the Committee on Graduate Studies. When the applicant meets with the Committee on Graduate Studies, he should be prepared to present an outline of his plan of study, including the selection of major and supporting fields.

COMPREHENSIVE EXAMINATIONS

When the student is admitted to doctoral candidacy, he is assigned to a committee, each member of which is responsible for guiding him in his preparation for one of the four required comprehensive examinations in supporting fields or the comprehensive major field examination. The candidate must arrange individual conferences with the committee members to determine the content of each field and to receive guidance in his preparation for the examination. All candidates are required to complete Education 296 during the first or second semester of candidacy.

The supporting field examinations, which are taken first, are six-hour written examinations. A tool-subject requirement may be established by the candi-

date's Dissertation Committee if it is necessary for the successful completion of his dissertation. This requirement must be completed prior to the major field examination. The major field examination is a written twelve-hour examination, six hours on each of two successive days.

The candidate begins the second part of his program after the satisfactory completion of all supporting field examinations; the tool subject, if required; and the major field examination.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

During the first part of the program, the Dean appoints a Dissertation Committee, consisting of a Master in Research, usually the major field adviser, and two additional faculty members who serve as readers. When admitted to the second part of the program, the candidate is required to submit a proposal for his dissertation to this Committee, which determines its acceptability and recommends approval to the Committee on Graduate Studies. The dissertation is completed under the direction of the Dissertation Committee.

No later than the date specified in the calendar the candidate must submit to the Dean two complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the *Abstracts of Doctoral Dissertations* issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication *Dissertation Abstracts*, which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for its file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc.

THE FINAL EXAMINATION

When the dissertation has been accepted, the Master in Research recommends the candidate to the Dean for the final oral examination, which must be passed at least three weeks before the degree is to be conferred. The examination is open to the public and is conducted by a committee of the Faculty, appointed by the Dean, supplemented by at least two leaders in the candidate's field of study from outside the University. Candidates who successfully pass the oral examination are recommended for the degree by the Faculty of the School of Education.

RESIDENCE AND CONTINUOUS STUDY

All the preparation for the degree must be done in residence. The student must remain registered in the School of Education, except when the Committee on Graduate Studies has granted a leave of absence. Failure to register each semester of the academic year may result in lapse of candidacy. Subsequent readmis-

sion is subject to whatever new conditions and regulations have been established by the Committee on Graduate Studies.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the minor and supporting field examinations or as a candidate engaged in doctoral research. The supporting and major field examinations, however, must be completed within five years of the date of admission, and the entire program must be completed within eight years, regardless of full-time or part-time study. Each candidate is required to complete one semester or more of his program in full-time study. Full-time study of six weeks or more in each of two Summer Sessions is equivalent to full-time study for one semester.

Special Programs and Services

MASTER OF ARTS IN TEACHING PROGRAM IN ELEMENTARY EDUCATION

THE SCHOOL OF EDUCATION OFFERS AN INTENSIVE fifth-year program, supported by a grant from the Ford Foundation, designed to prepare outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. Successful fulfillment of the program's requirements provides the professional courses necessary for certification as an elementary teacher. Students may receive the degree of Master of Arts in Teaching on completion of the program or receive credit for 15 semester hours of graduate work toward the degree of Master of Arts in Education.

For details, write to Program Director, M.A.T. Program in Elementary Education, The George Washington University, Washington, D.C. 20006.

ADMISSION TO THE PROGRAM

To be admitted as a student-intern, an applicant must (1) have a Bachelor's degree from an accredited liberal arts institution, including courses related to the general education requirements for teacher certification; (2) show evidence of interest in children and a sincere desire to teach; (3) submit three written references attesting to quality of academic record and personality; (4) submit a score on the Aptitude Test of the Graduate Record Examination or the Miller Analogies Test; and (5) be interviewed by the University Selection Committee, or under arrangements specified by the Committee and approved by the Dean of the School of Education.

PLAN OF STUDY

The program of study begins with a six-week summer session and continues through the first twelve weeks of the fall semester. Course work during this time is planned to help each student gain understanding of (1) the characteristics of elementary school children, (2) the subject-matter areas of the elementary school curriculum, (3) basic dimensions of teaching methodology, (4) the relationship between educational theory and methods, (5) educational tests and measurements, and (6) the role of the school in American society.

During six weeks of the fall semester, students will be given full-time student teaching assignments in a nearby public school. This part of the program will permit the student to use, in an actual teaching situation, the educational theories and methods which he has been studying. It is accompanied by a weekly on-campus seminar.

A salaried internship during the spring semester in one of the cooperating school systems in the area gives the student an opportunity to assume the responsibilities of a beginning teacher, with the help and guidance of University and public school staff members. Seminar meetings will be scheduled weekly for discussion of common problems and for cooperatively planned work on individual and group needs of interns.

EDUCATION OF TEACHERS OF EXCEPTIONAL CHILDREN

The School of Education offers a program for the education of teachers of exceptional children who are mentally retarded, emotionally disturbed, crippled or otherwise health impaired, and culturally disadvantaged. Laboratory experiences are arranged in schools for handicapped children in the metropolitan area. Students are accepted at the senior-year undergraduate, Master's, Education Specialist, and Doctoral levels. By special permission, teachers, school administrators, and adequately prepared students from other schools and colleges of the University may elect these courses.

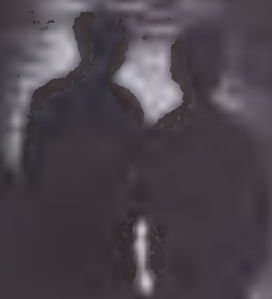
Inquiries concerning the program and the availability of scholarships and fellowships should be directed by Dr. Perry Botwin, Department of Special Education, The George Washington University, Washington, D.C. 20006.

CERTIFICATION CURRICULA

The School of Education provides individually planned programs for liberal arts graduates and for housewives and retired military personnel with appropriate degrees who wish to prepare for teaching. Those seeking certification, but not wishing to work for a degree, may enroll in a certification program if they meet the admission, scholarship, and personality requirements of degree candidates. The School also provides a wide range of courses of interest to teachers who wish to renew licenses.

READING CENTER (see pages 47-48)





SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

Dean J.C. Dockeray

Assistant Dean for Special Projects E.J.B. Lewis

FACULTY—ACADEMIC YEAR 1967-68

Professors J.J. Boyne, Charles Bradley, H.F. Bright, D.S. Brown, J.C. Dockeray, R.B. Eastin, R.F. Ericson, F.H. Gibbs, Leon Gintzig, J.L. Jessup, E.H. Johnson, E.J.B. Lewis, G.L. Lippitt, D.D. Roman, S.M. Rosen (*Visiting*), Waldo Sommers, K.E. Stromsem, Edwin Timbers

Adjunct Professor J.L. Intermaggio

Associate Professors G.R. Allen, Lloyd Bartholomew, Guy Black (*Research*), D.R. Cloutier, H.C. Demoody, Rodney Eldridge, P.D. Grub, F.C. Kurtz, E.R. Magruder, A.J. Mastro, J.F. McCarthy, Jr., Edward Mock, H.R. Page, Chei-Min Paik, R.C. Sedwick, T.E. Shaughnessy, J.H. Walters, Jr., M.M. Wofsey

Assistant Professors Elizabeth Adams, R.A. Barrett, G.F. Conner, M.G. Gallagher, R.F. Hartley, P.B. Jones, J.H. Norton, J.R. Rizzo, F.S. Rojo, J.R. Roman, Jr., L.C. Smith, W.E. Smith, J.L. Thompson, Jr., Jack Waldrip

Adjunct Assistant Professor A.G. Winslow

Instructors J.R. Glennie, L.W. Katz

COMMITTEES*

DEAN'S COUNCIL

J.C. Dockeray (*Chairman*), Leon Gintzig, E.J.B. Lewis, H.R. Page, L.C. Smith, K.E. Stromsem

COMMITTEE ON CURRICULUM

Leon Gintzig (*Chairman*), D.R. Cloutier, F.C. Kurtz, E.R. Magruder, J.F. McCarthy

COMMITTEE ON DOCTORAL STUDIES IN BUSINESS ADMINISTRATION AND PUBLIC ADMINISTRATION

D.D. Roman (*Chairman*), Charles Bradley, D.R. Cloutier, Leon Gintzig, E.H. Johnson, Chei-Min Paik, S.M. Rosen

*The Dean of the School is an ex officio member of all committees.

COUNCIL^{*}

The School of Government and Business Administration Council operates as an advisory group on policy, finance, and community relations. It consists of responsible members of the business and government communities, and of the faculty, administrators, and students of the School.

CHAIRMAN

August Schomburg, *Lieutenant General, USA (Ret.)*

MEMBERS OF THE COUNCIL

- Everett H. Bellows, *Vice President, Staff Services Metals Division, Olin Mathieson Chemical Corporation, New York, N. Y.*
 Leo M. Bernstein, *President, District of Columbia National Bank*
 David Springer Brown, *Professor of Public Administration*
 Carl William Clewlow, *Deputy Assistant Secretary of Defense for Civilian Personnel Policy, Department of Defense*
 Sheldon Stanley Cohen, *Commissioner, Internal Revenue Service*
 George M. Ferris, Jr., *President, Ferris & Company, Washington, D. C.*
 Melvin Gelman, *Gelman Construction Company, Washington, D. C.*
 Leon Gintzig, *Professor of Health Care Administration*
 William N. Kinnard, *Executive Secretary, City Parks Association of Philadelphia, Pa.*
 Edwin Joseph Baughman Lewis, *Professor of Accounting; Assistant Dean for Special Projects*
 William L. Lindholm, *President, The Chesapeake and Potomac Telephone, Washington, D. C. Companies*
 Charles Emory Phillips, *(University Trustee), President, Equitable Life Insurance Company, Washington, D. C.*
 George Olmsted, *Major General, USAR (Ret.), Chairman of the Board, Financial General Corporation, Washington, D. C.*
 Daniel David Roman, *Professor of Management; Chairman, Committee on Doctoral Studies*
 Maurice H. Schwartz, *Vice President, First National City Bank, New York, N. Y.*
 David James Sharpe, *Professor of Law*
 Douglas R. Smith, *President, National Savings & Trust Company, Washington, D. C.*
 Joseph H. Taggart, *Dean, Graduate School of Business Administration, New York University*
 Robert P. Thome, *Comptroller, The Washington Post Company, Washington, D. C.*
 James Otis Wright, *(University Trustee), President and Chief Executive Officer, Federal-Mogul Corporation, Detroit, Mich.*

STUDENT MEMBERS OF THE COUNCIL

- Thomas E. Richards, *(Graduate)*
 Stanley K. Moseley, *(Undergraduate)*

^{*} The President of the University, the Vice President for Academic Affairs, and the Dean of the School of Government and Business Administration are ex officio members of the Council.

INTRODUCTION

The study of Government was first organized as a separate entity in the University in 1898 with the establishment of the School of Comparative Jurisprudence and Diplomacy. In 1928, this School was reorganized and broadened as the School of Government. During the next two decades, programs in business administration and public administration were added, and the emphasis gradually shifted from undergraduate to graduate study. The name was changed in 1960 to the School of Government, Business, and International Affairs to reflect more accurately the offerings of the School. A division of the School was effected in 1966, and two schools were established—the School of Government and Business Administration, a primarily professionally-oriented school; and the School of Public and International Affairs, a primarily policy-oriented school.

Programs of the School of Government and Business Administration include examination of administrative principles and the quantitative approaches to decision making common to both business and government. These programs stress the points at which major policy decisions of either business or government must give consideration to related policy decisions of the other. Emphasis is placed upon the fact that management education is not limited to organizational techniques but is, in its broadest sense, education for management responsibility.

Students in the freshman and sophomore years are registered in the lower division of Columbian College of Arts and Sciences, the liberal arts college of the University. Here they are assigned special advisers from this School to assist them in planning their programs.

ACADEMIC PROGRAMS

Programs in the fields of Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, and Urban and Regional Planning are all available within the School of Government and Business Administration.

OBJECTIVES

The School of Government and Business Administration offers programs to equip students for eventual senior administrative responsibility in government and business. The development of mid-career programs for executives has become a further objective of national significance.

ACADEMIC STATUS

The School of Government and Business Administration has maintained full membership in the Middle Atlantic Association of Colleges of Business Administration since 1961. It joined the Council on Graduate Education for Public Administration in 1966. The programs in Public Accounting designed to prepare students for Certified Public Accountants examinations have been approved by the state boards of New York and of Maryland. The program in Hospital Administration has been accredited by the Association of University Programs in Hospital Administration since 1962.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 21-30; other University regulations, on pages 40-46.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

The student is held responsible for all the work of the courses in which he is registered, and all absences must be excused by the instructor in charge before provision is made for him to make up the work missed.

A student suspended for any cause may not attend classes during the period of suspension.

INDEPENDENT STUDY PLAN

A student of *demonstrated capacity*, with a special interest in the subject matter of a course, may be permitted to undertake study under the personal direction of an instructor, in accordance with the rules of the appropriate department. Credit under this plan is limited to the specific course credits normally allowed when taken on a class basis.

Bachelor of Business Administration

THE SCHOOL OFFERS PROGRAMS leading to the degree of Bachelor of Business Administration in the fields of Accounting, Business Administration, Business and Economic Statistics, and International Business.

ENTRANCE REQUIREMENTS

The satisfactory completion of the *Accounting, Business Administration, and International Business* or the *Business and Economic Statistics* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 72-73), or the equivalent is required.

REQUIREMENTS FOR THE DEGREE

ACADEMIC WORK LOAD

A full-time student not on probation may not ordinarily take more than 15 semester hours. A student employed more than 24 hours a week, who is not on probation, may not take more than 9 semester hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 18 semester hours. A student employed more than 24 hours a week, whose index is 3.50 or higher, may take up to 12 semester hours.

A student who accepts employment after registration or at any time during a semester must report immediately to the Dean, so that his program may be adjusted if necessary.

Exception to these rules will require the approval of the Dean.

SCHOLARSHIP

In order to graduate, a student must have the following: (1) a general quality-point index of at least 2.00 and (2) an index in his major of at least 2.50. The major includes the required courses and courses taken in the group options.

DEAN'S HONOR LIST

The names of students who achieve a quality-point index of 3.50 or higher are placed on the Dean's Honor List for that semester. Appearance on the List will be limited to (1) full-time students registered for a minimum of 12 semester hours and (2) part-time students registered for a minimum of 12 semester hours over a period of two consecutive semesters, which may include a summer term.

PROBATION

A student whose quality-point index falls below 2.00 after completing a minimum of 12 semester hours of study, will be placed on probation. This probation extends over the period in which the student attempts 12 semester hours of work which may include remedial studies as prescribed.

SUSPENSION

A student whose quality-point index is 1.50 or below or whose index remains below 2.00 at the end of his probationary period may be suspended. A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. To be considered for readmission, he must pass prescribed tests and submit evidence to the Dean's Council that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student readmitted after suspension is on probation and must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed while registered in the School of Government and Business Administration. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted toward the residence requirement, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in the School of Government and Business Administration.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supple-

mentary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

CREDIT/NO CREDIT OPTION (see page 41)

CORRESPONDENCE AND HOME-STUDY COURSES

Credit for correspondence or home-study courses is not acceptable and cannot be applied toward a degree.

CURRICULUM REQUIREMENTS

To be recommended by the Faculty for graduation, candidates are required to complete, in addition to the appropriate freshman and sophomore work, a minimum of 60 semester hours during the junior and senior years, as set forth in one of the following curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS

A required course may be waived by the satisfactory passing of a waiver examination authorized and prescribed by the department or curriculum adviser concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Request to take the examination should be made to the curriculum adviser and the required fee paid at the Office of the Cashier before the date set for the examination.

MAJOR FIELDS FOR THE BACHELOR'S DEGREE

Candidates for the degree of Bachelor of Business Administration must have completed the requirements of the Columbian College of Arts and Sciences Lower Division in the relevant curriculum: Accounting, Business Administration, and International Business, pages 72-73; Business and Economic Statistics, page 73; or the equivalent.

ACCOUNTING

For the first two years of the Accounting curriculum, see pages 72-73.

Programs are offered in three areas of professional specialization: (1) Managerial Accounting in Business; (2) Federal Financial Management—Accounting and Budgeting; and (3) Public Accounting.

Required—Junior and Senior Years

	Semester Hours
Acct 101: Cost Accounting	3
Acct 121-22: Intermediate Accounting	6
Acct 161: Federal Income Taxation.....	3
Acct 171: Auditing	3
B Ad 102: Fundamentals of Management.....	3
B Ad 131: Business Finance.....	3
B Ad 161: Commercial Law: Contracts, Sales, Agency, and Bailments	3

	Semester Hours
B Ad 162: Commercial Law: Negotiable Instruments, Property, Mortgages	3
Econ 121: Money and Banking.....	3
Area of Professional Specialization:	15
Elective: To be selected in consultation with the adviser at the beginning of the junior year.....	15
Total.....	60

All Accounting majors must complete the *required* courses listed above, plus one of the following 15 semester-hour areas of professional specialization. Special programs and elective courses may be arranged in consultation with the Department of Accounting.

GROUP I: MANAGERIAL ACCOUNTING IN BUSINESS

Students preparing for careers in managerial accounting in business may specialize in a particular area of accounting, such as systems, budgeting, or income tax, or may concentrate on broadening their backgrounds in business administration or in more general fields of knowledge. The Managerial Accounting program thus provides maximum flexibility for students who wish to combine basic training in accounting with other career interests, in preparation either for general business responsibilities or in preparation for more specific careers in the financial management field.

Courses relating to Managerial Accounting to be selected with the approval of the adviser (may not include Accounting courses in excess of 9 hours).

GROUP II: FEDERAL FINANCIAL MANAGEMENT—ACCOUNTING AND BUDGETING

Students preparing for careers in financial management in the Federal Government may combine basic professional training in accounting with more specialized training in the financial management techniques used in administering the complex affairs of modern-day government. A flexible program can be developed in keeping with the specific career objectives of the individual student by the careful selection of electives.

Courses relating to Federal Financial Management to be selected with approval of the adviser (may not include Accounting courses in excess of 9 hours).

GROUP III: PUBLIC ACCOUNTING

The Public Accounting program is a concentrated professional curriculum designed to prepare students for careers in public accounting. It combines the maximum number of professional accounting courses consistent with the broad educational background essential to successful accounting careers in the modern business world.

Courses relating to Public Accounting to be selected with approval of the adviser.

BUSINESS ADMINISTRATION

For the first two years of the Business Administration curriculum, see pages 72-73.

The program in Business Administration is designed to provide the broad foundation required for eventual top leadership in either governmental or business administration. It consists of the 30 semester hours of *required* courses; 15 hours in one of the following group options; and 15 hours of electives, normally advanced courses in liberal arts subjects.

Required—Junior and Senior Years

	Semester Hours
Acct 193: Business Budgeting.....	3
B Ad 102: Fundamentals of Management.....	3
B Ad 105: Personnel Management.....	3
B Ad 131: Business Finance.....	3
B Ad 141: Basic Marketing Management.....	3
B Ad 161: Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 162: Commercial Law: Negotiable Instruments, Property, Mort- gages	3
B Ad 191: Business Reports and Analyses.....	3
B Ad 198: Case Problems in Management.....	3
Econ 121: Money and Banking.....	3
Group Option: To be selected from one of the following groups.....	15
Elective: To be selected in consultation with the adviser.....	15
Total.....	60

GROUP OPTIONS

Seven areas of specialization are open to Business Administration majors. The 15 hours taken in each of these options require the approval of the adviser. The group option and the individual courses within the option should be selected *no later than the beginning of the second semester of the junior year.*

GROUP I: AUTOMATIC DATA PROCESSING

The following courses provide the basic academic foundation for positions in data processing in government, business, and industry. They also give the student an understanding of the manager's use of data processing as a vital managerial technique.

- B Ad 118: Introduction to Data Processing
- B Ad 119: Data Processing Programming
- B Ad 120: Data Processing Systems
- Stat 111, 112: Business and Economic Statistics I, II

GROUP II: ECONOMICS

The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

- *Econ 101: Intermediate Microeconomic Theory
- *Econ 102: Intermediate Macroeconomic Theory
- Econ 161, 162: Public Finance I, II
- Econ 165: Government and Business
- Econ 181-82: International Economics
- Stat 111, 112: Business and Economic Statistics I, II

GROUP III: FINANCE

The following courses provide the basic academic foundation for such positions as credit analyst, supervisor in a financial institution, bond cashier, trust officer, bank examiner, and similar positions in federal or international financial institutions.

* Required for this group option.

- *Acct 111: Financial Statement Analysis
- Acct 121-22: Intermediate Accounting
- B Ad 113: Real Estate
- B Ad 118: Introduction to Data Processing
- B Ad 121: Fundamentals of Insurance
- B Ad 136: Credit Management
- *B Ad 138: Investments
- B Ad 163: Law in Relation to the Form of Business Units:
Corporations, Partnerships, and Trusts
- B Ad 181: Manufacturing Production
- Econ 101: Intermediate Microeconomic Theory

GROUP IV: MARKETING

The following courses provide the basic academic foundation for such positions as sales manager, marketing manager, product development manager, research director, buyer, advertising director, sales promotion manager, and credit manager

- B Ad 136: Credit Management
- B Ad 142: Retail Marketing
- *B Ad 143: Marketing Research
- B Ad 144: International Marketing Management
- *B Ad 145: Sales Management
- B Ad 147: Advertising
- B Ad 158: Physical Distribution Management
- B Ad 171: Principles of Transportation
- B Ad 175: Introduction to Foreign Trade
- B Ad 176: International Business Theory and Policy
- B Ad 178: Management of International Business Operations
- B Ad 181: Manufacturing Production

GROUP V: PERSONNEL MANAGEMENT

The following courses provide the basic academic foundation for such positions as personnel manager, employee relations manager, and employment manager in business and government service.

- *B Ad 106: Problems in Personnel Management
- *B Ad 107: Collective Bargaining
- B Ad 118: Introduction to Data Processing
- Jour 145: Principles and Problems of Public Relations
- Psyc 129: Motivational Factors in Personality
- Psyc 131: Psychological Tests
- Psyc 144: Personnel and Industrial Psychology
- Sp&D 121: Group Discussion and Conference Leadership

GROUP VI: STATISTICS

The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

- B Ad 118: Introduction to Data Processing
- Stat 91: Principles of Statistical Methods
- Stat 110: Quality Control and Reliability Techniques
- *Stat 111, 112: Business and Economic Statistics I, II

* Required for this group option.

- Stat 117: Analysis of Variance
- Stat 118: Regression Analysis
- Stat 155: Introduction to Probability
- Stat 157-58: Introduction to Mathematical Statistics

GROUP VII: TRANSPORTATION AND TRAFFIC MANAGEMENT

The following courses provide the basic academic foundation for management positions in transportation firms and in traffic departments of other types of business firms and government agencies. The program should also aid in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

- B Ad 113: Real Estate
- B Ad 158: Physical Distribution Management
- *B Ad 171: Principles of Transportation
- B Ad 172: Public Utilities
- *B Ad 173: Transportation Systems Management
- B Ad 174: Urban Transportation
- B Ad 175: Introduction to Foreign Trade
- Engr 141: Urban Systems
- Geog 125: Transportation Complexes

BUSINESS AND ECONOMIC STATISTICS

For the first two years of the Business and Economic Statistics curriculum, see page 73.

The undergraduate program in Business and Economic Statistics is designed as preparation for business and economic analysis. It consists of 30 semester hours of *required* courses and 30 hours of *electives* from Accounting, Business Administration, Economics, and Statistics.

Required—Junior and Senior Years

	Semester Hours
B Ad 102: Fundamentals of Management.....	3
B Ad 131: Business Finance, or	
B Ad 141: Basic Marketing Management	3
B Ad 161: Commercial Law: Contracts, Sales, Agency, and Bailments	
B Ad 162: Commercial Law: Negotiable Instruments, Property, Mortgages	3
B Ad 191: Business Reports and Analyses.....	3
Econ 101: Intermediate Microeconomic Theory	3
Econ 102: Intermediate Macroeconomic Theory.....	3
Stat 111, 112: Business and Economic Statistics I, II.....	6
Elective (A): To be selected from Statistics.....	18
Elective (B): To be selected in consultation with the adviser.....	15
Total.....	60

INTERNATIONAL BUSINESS

For the first two years of the International Business curriculum, see pages 72-73.

This program is designed to provide the basic academic foundation for positions in international business, both in private industry and in government. ¹¹

* Required for this group option.

consists of 30 semester hours of *required* course work and 30 hours of electives. Any modification of the program must be made with the consent of the adviser.

Required—Junior and Senior Years

	Semester Hours
B Ad 102: Fundamentals of Management.....	3
B Ad 131: Business Finance.....	3
B Ad 132: International Business Finance.....	3
B Ad 141: Basic Marketing Management.....	3
B Ad 144: International Marketing Management.....	3
B Ad 161: Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 175: Introduction to Foreign Trade.....	3
B Ad 176: International Business Theory and Policy.....	3
B Ad 178: Management of International Business Operations.....	3
Econ 121: Money and Banking.....	3
Elective: Selected from the following in consultation with adviser....	30
Total.....	60

ELECTIVES

The 30 hours of elective courses are to be selected from the following, in consultation with the adviser.

Acct 193: Business Budgeting
B Ad 143: Marketing Research
B Ad 158: Physical Distribution Management
B Ad 162: Commercial Law: Negotiable Instruments, Property, Mortgages
B Ad 171: Principles of Transportation
B Ad 173: Transportation Systems Management
B Ad 174: Urban Transportation
B Ad 177: Foreign Markets
B Ad 191: Business Reports and Analyses
B Ad 195: Controllorship
Econ 101: Intermediate Microeconomic Theory
Econ 181-82: International Economics
Geog 126: World Economic Geography
Geog 151-166: Regional survey courses
P Sc 167: U.S. Foreign Policy
P Sc 181-82: Public International Law and Organization
Stat 111, 112: Business and Economic Statistics I, II

The Master's Degrees

Master of Business Administration

PROGRAMS LEADING TO THE DEGREE of Master of Business Administration are offered in the following fields:

Accounting
Business Administration
Health Care Administration

International Business
Personnel Administration

Master of Public Administration

Programs leading to the degree of Master of Public Administration are offered in the following fields:

Health Care Administration
Personnel Administration

Public Administration
Urban and Regional Planning

Master of Urban and Regional Planning

This program leads to the professional planning degree of Master of Urban and Regional Planning.

Master of Arts in Government

Programs leading to the degree of Master of Arts in Government are offered in the following fields:

Business and Economic Statistics
Personnel Administration

Public Administration
Urban and Regional Planning

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) in the relevant undergraduate field, is required.

Students who lack sufficient undergraduate study in business or related fields may be required to make up these deficiencies by taking specified undergraduate courses and maintaining a 3.00 average in those courses. In the case of mature students with extensive experience in relevant fields, work experience may be considered in addition to the scholastic record of the individual, to reach an acceptable standard for admission to graduate study.

MASTER OF BUSINESS ADMINISTRATION

Applicants for admission to programs leading to the degree of Master of Business Administration must submit scores on the Admission Test for Graduate Study in Business administered by the Educational Testing Service.

MASTER OF PUBLIC ADMINISTRATION

Applicants for admission to programs leading to the degree of Master of Public Administration must submit scores on the Admission Test for Graduate Study in Business or the Graduate Record Examination administered by the Educational Testing Service.

MASTER OF URBAN AND REGIONAL PLANNING

Applicants for admission to programs leading to the degree of Master of Urban and Regional Planning must submit scores on the Admission Test for Graduate Study in Business or the Graduate Record Examination administered by the Educational Testing Service.

MASTER OF ARTS IN GOVERNMENT

Applicants for admission to programs leading to the degree of Master of Arts in Government must submit scores on the Admission Test for Graduate Study in Business or the Graduate Record Examination administered by the Educational Testing Service.

ADMISSION TESTS ARRANGEMENTS

Arrangement for required tests is the responsibility of the applicant and should be made with the Educational Testing Service, Princeton, N.J. 08540. Correspondence concerning the Admission Test for Graduate Study in Business should be addressed to Box 966; concerning the Graduate Record Examination, to Box 955.

GENERAL REQUIREMENTS

A program of greater length, including undergraduate background courses, may be assigned for an applicant whose undergraduate degree was in a field other than the graduate program he wishes to follow, or whose undergraduate record indicates a weakness in required background courses.

Master's degrees are awarded by vote of the Faculty on completion of the required course work, an acceptable thesis or the equivalent, and the passing of the Master's Comprehensive Examination. An applicant whose background does not include the necessary courses must take a program longer than the minimum hours required.

Second-group courses (numbered 101-200) may be counted toward the Master's degree, only when registration for graduate credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

All work for a Master's degree must be completed in five years, unless an extension of time is granted by the Dean.

A student who expects to continue his studies for the degree of Doctor of Business Administration or Doctor of Public Administration after receiving the Master's degree should ask for assistance in planning his program so that he may qualify for admission to candidacy for the Doctorate.

No credit is granted for work done *in absentia* or without formal instruction, except for hospital residency and the thesis, which may be completed *in absentia* with the permission of the department, curriculum adviser, or committee concerned.

MASTER'S COMPREHENSIVE EXAMINATION

In addition to individual course examinations the candidate must pass a general written Master's Comprehensive Examination. In writing the examination the student is expected to correlate what he has learned in his course work and his reading in the literature of his fields. The examination normally requires from seven to nine hours writing time. Sections broadly cover the various fields in which the candidate has prepared himself.

The examinations are scheduled two times a year, in December and April, and should be taken during the last semester of course registration or shortly

after completion of the prescribed course work. If there is a lapse of time between completion of course work and the taking of the examination, the student must maintain continuous registration and must be registered for the semester in which the examination is taken.

The candidate should consult with his adviser, well in advance, as to the dates of his examination and the definition of the subject-matter fields which his examination is to cover. A written application is filed, in the form prescribed, with the Office of the Dean no later than thirty days prior to the examination.

A candidate who fails the examination may, in exceptional circumstances and with specific approval of his advisers, repeat the examination, but only after the lapse of one semester and the undertaking of additional preparation as prescribed. *If he fails a second time, no further opportunity to take the examination will be permitted.*

SCHOLARSHIP

Grades for graduate work are *A*, outstanding; *B*, high quality; *C*, minimum quality; *F*, failure; *I*, incomplete; and *CR*, credit.

An average of *B* or better is required for the Master's degree. The grade of *C* is not considered as failing but must be counter-balanced by a grade of *A* in a graduate course of equal status.

A Master's candidate who receives a grade of *F* is required to present cause for consideration by the Dean's Council as to why he should be allowed to continue his studies.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course.

REQUIRED COURSES IN ADMINISTRATION (Certain Fields)

The following courses in general administrative theory and practice are required of all candidates for the degree of Master of Public Administration and Master of Business Administration, except in the field of Accounting.

	Semester Hours
B&PA 201: Advanced Administrative Management.....	3
B&PA 204: Quantitative Factors in Administration.....	3
B&PA 207: Human Behavior in Organizations.....	3

In addition, each student is normally required to take, from the following group, the course appropriate to his specific area of concentration:

	Semester Hours
B Ad 297: Case Studies in Business Administration.....	3
HCA 206: Case Studies in Health Care Administration.....	3
P Ad 298: Case Studies in Public Administration.....	3

THE THESIS

The thesis subject should be selected as early as possible so as to permit effective integration with the course work.

The subject must be approved by the professor in charge of the student's field. The thesis in its final form must have the approval of the professor in charge and must be presented to the Dean by the student no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the two semesters he registers for thesis (299-300), to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year is granted without further tuition payment. The student must, however, maintain continuous registration during this period. If the preparation of the thesis extends more than three semesters beyond the date he registers for thesis 300, the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

MASTER OF BUSINESS ADMINISTRATION

Curricula leading to the professional degree of Master of Business Administration are available in the fields of Accounting, Business Administration, Health Care Administration, International Business, and Personnel Administration.

The purpose of the programs leading to the degree of Master of Business Administration is to develop the analytical ability and perspective which will contribute to success as a responsible executive. Because of the increasingly close relationship between government and business, these programs also provide an excellent background for many government careers. To provide maximum flexibility, each student program is planned with an assigned faculty adviser.

An applicant must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the Master's Comprehensive Examination, and the submission of an acceptable thesis. The complete program consists of 60 semester hours, 54 hours of course work and 6 of thesis; and students with *no* previous background in business administration or accounting are rarely advised to take the Master's Comprehensive Examination before completing 54 hours of course work. Students who have an undergraduate background in either business administration or accounting, however, are encouraged to take the Master's Comprehensive Examination as soon as the curriculum adviser believes they are prepared for it. A student who has completed an undergraduate major in accounting or in business administration with a good record may qualify under a minimum acceptable program of 30 hours, including the thesis. No more than 6 hours of graduate course credits can be transferred from other accredited institutions, and each transfer of credit must be approved by the Dean.

ACCOUNTING

The Master's programs in Accounting are designed (1) for those who wish to pursue careers as professional accountants, (2) for those who wish to pursue careers of executive responsibility with emphasis on finance and accounting in

either business or government, and (3) for those who wish to pursue careers as teachers of accounting. Programs are sufficiently flexible to meet individual student objectives; selection of courses is made in consultation with the adviser. The programs are available in three basic areas, professional accounting, governmental accounting, and managerial accounting.

BUSINESS ADMINISTRATION

The Master's programs in Business Administration are designed for those who wish to pursue responsible careers as administrators in either government or business.

Individual programs are planned in consultation with the adviser to fit the professional objectives of the student. The course work must include the *required* courses in administration (see page 130). Fields of study include administrative theory and practice (required), behavioral factors in administration, managerial economics, business-government relations, business statistics, data processing, finance and investments, international business, managerial accounting, marketing, operations research and systems analysis, personnel management, procurement and contracting, and transportation.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration lead to the degrees of Master of Business Administration or Master of Public Administration with areas of concentration in the administration of short-term hospitals, long-term and other related health care facilities, and health records. The basic curriculum, which includes the *required* courses in administration (see page 130), consists of from 45 to 60 semester hours, depending upon the background and experience of each student.

The Health Care Administration programs are designed to give students the opportunity of acquiring the knowledge, attitudes, and skills essential as foundations for growth into capable health care administrators.

While no undergraduate major is specified, a desirable background for short-term hospitals and long-term facilities would include courses in accounting, biology, business administration, economics, psychology, sociology, statistics, and college algebra. A minimum of 6 semester hours of undergraduate accounting and 3 hours of statistics must be taken prior to admission to degree candidacy. Applicants with academic deficiencies may be permitted to enroll as special students subject to the satisfactory completion of prescribed courses beyond the minimum requirements for admission.

Master's candidates who may wish to continue for a doctorate should plan the Master's program accordingly, in consultation with their advisers.

HOSPITAL ADMINISTRATION

The program in Hospital Administration is divided into two phases. During the first phase the student must complete a satisfactory academic program ranging from 36 to 51 semester hours of course work, selected in accordance with his background needs. These courses cover the general and technical background of hospital administration, general administrative theory and practice, and problem solving in the area of management as it relates to short-term hospitals. The second phase is a calendar-year residency of on-the-job institu-

tional training under qualified supervision, which carries 9 semester hours of credit.* A written major report is required as a part of phase two.

Ordinarily full-time students can expect to complete the on-campus phase of the degree program in from two to four semesters over a period of from one to two academic years. The total time depends on past academic course work and experience background in the health care field. In no instance can the total program consist of less than 45 hours, including residency.

ADMINISTRATION OF LONG-TERM CARE FACILITIES

Master's candidates electing a concentration in the Administration of Long-term Care Facilities such as chronic disease hospitals, nursing homes, facilities for the aged, extended care facilities, and mental hospitals, have the same admission requirements as students in the hospital administration field. Students will follow the same program of study as stated under the first phase of the hospital administration field (see page 132); however, they must include required courses in long-term areas.

The second phase of the program consists of a calendar year of residency in one or more facilities for long-term care, for which the student receives 9 semester hours of credit*. During the residency year the candidate must write a major report.

HEALTH RECORDS ADMINISTRATION

The Health Records Administration program offers an area of concentration which, when added to other material acquired, provides special assistance to those who wish to manage an automatic data processing activity for an entire health care institution or system. It is designed to prepare those who wish to supervise data collection, processing, and retrieval activities for health care complexes. For further information, request the Department of Health Care Administration brochure.

INTERNATIONAL BUSINESS

The Master's program in International Business is designed to prepare students for careers in firms operating on a multinational basis or about to enter the international field; for careers in the Federal Government and in international agencies concerned with business, industry, and finance abroad; and for the Commerce option of the Foreign Service Officer Examination.

This program is also designed to prepare foreign students with the background and skills necessary to promote international business, for careers in foreign and domestic firms within their own countries and for commercial officer positions within their governments.

Each student's program is individually developed by the student's adviser according to the student's background and interests, and includes the required courses in administration, see page 130.

PERSONNEL ADMINISTRATION

The program in Personnel Administration leads to the degree of Master of Business Administration (if elective emphasis is directed toward Business Ad-

* In selected cases, a combined residency can be arranged in more than a single concentration.

ministration), to the degree of Master of Public Administration (if elective emphasis is directed toward Public Administration), or to the degree of Master of Arts in Government.

The course work must include the *required* courses in administration, page 130, and the thesis (Business Administration 299-300 or Public Administration 299-300). Each student's program is arranged in consultation with a curriculum adviser.

MASTER OF PUBLIC ADMINISTRATION

Curricula leading to the professional degree of Master of Public Administration are available in the fields of Health Care Administration, Personnel Administration, Public Administration, and Urban and Regional Planning.

PUBLIC ADMINISTRATION

This program provides a course of study appropriate for those students currently in government or with appreciable past experience in government, or those with other than an undergraduate social science degree. The degree of Master of Public Administration is a professional degree, preparing graduates for positions of higher responsibility in the public service and generally improving their competence in public employment. Work done for this degree may lead directly toward the degree of Doctor of Public Administration.

The degree is awarded by vote of the Faculty upon satisfactory passing of the Master's Comprehensive Examination and the submission of an acceptable thesis. The academic program ranges from 36 to 60 semester hours, depending upon the background and experience of each student. Six semester hours in the program represent major research and preparation of a thesis. Students who have strong undergraduate backgrounds in political science, history, economics, business administration, sociology, or psychology, or who have had appropriate career experience closely related to such fields, will ordinarily require a minimum amount of course work to qualify for the degree. Each student develops an individual program in consultation with his faculty adviser to prepare for the Master's Comprehensive Examination.

No more than 6 hours of graduate credit can be transferred from other accredited institutions, and any transfer of credit must be approved by the Dean.

The course work for the degree of Master of Public Administration must include the *required* courses in administration, page 130. Other courses are selected, with the approval of the adviser, to prepare the student for the Master's Comprehensive Examination, which covers three fields of study. The field of administrative theory and practice is required of all students. The other two fields may be chosen from administration in the federal government, comparative and development administration, data processing and systems management, government-business relations, health care administration, human behavior in organizations, international administration and trade, metropolitan administration and urban affairs, public financial management and budgeting, public personnel administration, regional planning, urban planning and design, and closely related management and social science fields.

A thesis, which may be a major case study, is prepared under the guidance of an approved director.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration are described on pages 132-33, and lead to the degree of Master of Business Administration or Master of Public Administration.

PERSONNEL ADMINISTRATION

The program in Personnel Administration leads to the degree of Master of Public Administration (if elective emphasis is directed toward Public Administration), to the degree of Master of Business Administration (if elective emphasis is directed toward Business Administration), or to the degree of Master of Arts in Government.

The course work must include the *required* courses in administration, page 130, and the thesis (Public Administration 299-300 or Business Administration 299-300). Each individual student's program is arranged in consultation with a curriculum adviser.

URBAN AND REGIONAL PLANNING

The program in Urban and Regional Planning is designed to provide a broad background in planning theory and methodology for students who are working toward the degree of Master of Public Administration. The standards for the program are similar to those for the Public Administration curriculum outlined on page 134. The student is expected to include public administration, federal or metropolitan, as an integral part of his studies. The program provides a specialized background for dealing with planning problems on the national, state, county, and municipal levels of government. With the counseling of an adviser, each program is individually planned in accordance with the interest and goal of the student.

MASTER OF URBAN AND REGIONAL PLANNING

The program of graduate study in Urban and Regional Planning leads to the professional planning degree of Master of Urban and Regional Planning. It is designed as preparation for careers on the municipal, county, state, and national levels, and for private professional practice. The course of study is designed to provide a broad professional education, to develop competence in planning and methodology, and to emphasize the analytical ability and creativity necessary for solving urban and regional problems. Each student's program is designed in consultation with an assigned faculty adviser in accordance with his individual career plans.

The degree is awarded by vote of the Faculty after satisfactory completion of (1) from 45 to 60 semester hours of course work, depending upon the background and experience of each individual student, including a thesis equivalent to 6 semester hours (most students will ordinarily be required to take 60 semester hours); (2) a minimum of three months' full-time professional training in a planning agency under qualified supervision, with an acceptable written report to be submitted after completion of the training period; (3) the passing of a written Master's Comprehensive Examination; and (4) a thesis based on the candidate's research in the field of urban and regional planning.

MASTER OF ARTS IN GOVERNMENT

Curricula leading to the degree of Master of Arts in Government are available in the fields of Business and Economic Statistics, Personnel Administration, Public Administration, and Urban and Regional Planning.

The programs leading to this degree require a minimum of 36 semester hours of work, which includes a thesis equivalent to 6 semester hours.

Second-group courses (numbered 101-200) may be counted toward the Master's degree up to a maximum of 12 hours, but only when registration for advanced credit has been approved at the beginning of the course by the faculty adviser and instructor. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

BUSINESS AND ECONOMIC STATISTICS

Prerequisite: an undergraduate major in Business and Economic Statistics, or the equivalent; such work must include a minimum of 24 semester hours of second-group courses in statistics and a minimum of 10 semester hours in second-group courses in accounting, business administration, and economics.

This program requires at least 12 semester hours of graduate courses in statistics. The remaining courses are to be selected from graduate offerings in accounting, business administration, economics, public administration, and statistics with the approval of the adviser. A thesis equivalent to 6 semester hours is required.

PERSONNEL ADMINISTRATION

The program in Personnel Administration leads to the degree of Master of Arts in Government, to the degree of Master of Business Administration (if elective emphasis is directed toward Business Administration), or to the degree of Master of Public Administration (if elective emphasis is directed toward Public Administration).

The course work must include the *required* courses in administration, page 130, and the thesis (Business Administration 299-300 or Public Administration 299-300). Each individual student's program is arranged in consultation with a curriculum adviser.

PUBLIC ADMINISTRATION

The program, in contrast to the professional program leading to the degree of Master of Public Administration (see page 134) is designed for students who wish to emphasize the academic elements of Public Administration. It may also serve as a basis for later study toward the doctoral degree. It is a suitable degree objective for students who have just completed the Bachelor's degree.

Each student is expected to prepare himself for a Master's Comprehensive Examination, which covers three fields. The field of administration and policy formulation in government is required. The other two may be selected from such fields as comparative and developmental administration, data processing and systems management, government-business relations, human behavior in organizations, international administration and trade, metropolitan administration and urban affairs, public financial management and budgeting, public personnel administration, regional planning, and urban planning and design. Re-

lated studies may be selected from accounting, economics, geography, history, political science, psychology, and sociology.

The course work is planned with an adviser.

URBAN AND REGIONAL PLANNING

The program in Urban and Regional Planning leading to the degree of Master of Arts in Government is designed to provide planning theory and methodology for students who have an undergraduate degree in the social sciences. The student is expected to include public administration, federal or metropolitan, as an integral part of his studies, and courses in *Urban Planning and Design* or *Regional Planning*. Under the counseling of an adviser, each program is individually planned in accordance with the interest and goal of the student.

Graduate Certificate in Health Care Administration

STUDENTS WITH APPROVED MASTER'S DEGREES from accredited institutions may take a special post-Master's program leading to a Graduate Certificate in Health Care Administration. Each program will be planned to meet the professional needs of the individual student whether he wishes to undertake a new field of study or amplify his knowledge of work done at the Master's level.

This program permits study in depth in such areas as health care administration consulting, regional planning, governmental administration, and long-term health care administration, including mental hospitals, nursing homes and care of the aged.

Prerequisite: a Master's degree from an accredited college or university and an academic average which indicates the ability to undertake advanced study. The applicant is also judged on his experience, character, and personality. Students lacking formal study in health care administration will be required to take qualifying courses.

REQUIREMENTS FOR THE CERTIFICATE

Students with adequate preparation in the health care field can complete the requirements with a minimum of 18 semester hours of approved graduate study. Those lacking such specialized study or equivalent experience will usually need to complete approximately 30 hours. At the discretion of the student's advisory committee a maximum of 6 semester hours may be transferred from another accredited institution if the work was taken for credit toward a graduate degree.

PROGRAM OF STUDIES

Health Care Administration 270 *Research in Health Care Administration* is required of all candidates for the Certificate. The remaining courses consist of a program of study worked out in consultation with a faculty adviser and planned with consideration of the student's educational and experience background and his specific professional objectives.

Doctoral Study

WORK FOR THE DEGREES of Doctor of Business Administration and Doctor of Public Administration is under the supervision of the Committee on Doctoral Studies.

Completed application forms must be sent to the Office of the Admissions Officer, the School of Government and Business Administration, The George Washington University, Washington, D.C. 20006. The applicant should ask three individuals, who are acquainted with his ability to do high-level academic work, to write directly to the Chairman of the Committee on Doctoral Studies. Applicants for the degree of Doctor of Business Administration must file results of the Admission Test for Graduate Study in Business with the Office of the Admissions Officer before final approval of their applications can be given. Applicants for the degree of Doctor of Public Administration must submit results of either the Admission Test for Graduate Study in Business or the Graduate Record Examination to the Office of the Admissions Officer. Arrangements to take these tests must be made with the Educational Testing Service, 20 Nassau Street, Princeton, N.J. 08540; or 1947 Center Street, Berkeley, Calif. 94704.

An applicant must have the degree of Master of Business Administration or Master of Public Administration, as appropriate; or a Master of Arts degree in an approved field; or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examinations.

The Committee on Doctoral Studies, in consultation with the applicant, will (1) designate fields of study selected from such areas as Business Administration, Economics, Health Care Administration, International Business, Public Administration, and Political Science, and (2) appoint an adviser to guide the student in his work in these fields. Most students will complete, prior to the General Examination, a minimum of 30 semester hours in graduate courses and such additional course work as may be prescribed by the adviser; but each program is individually arranged in light of the student's background.

All work for the Doctor's degree must be completed in five years unless an extension of time is granted by the Committee on Doctoral Studies prior to the expiration of the time limit.

Students not registered for doctoral study under the payment plan in effect prior to July 1, 1967, are required to register for a minimum hour-load (see page 27).

When the applicant has satisfied his adviser and the Committee of his readiness to take the General Examination in the fields of study previously designated, the examination will be scheduled during the following February or October.

Upon successful completion of the General Examination and approval of the subject of the doctoral dissertation, the student may be admitted to candidacy by the Committee on Doctoral Studies. Work on the dissertation is equivalent to a minimum of 24 semester hours. The candidate's research and the preparation of his dissertation are supervised by a Research Adviser designated by the Committee.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean two complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the *Abstracts of Doctoral Dissertations* issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication *Dissertation Abstracts* which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for its file.

Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc.

THE FINAL EXAMINATION

The Final Examination of the candidate consists of his oral defense of the dissertation. The examination will be given by a committee appointed by the Committee on Doctoral Studies. Upon successful completion of this oral examination the candidate will be approved for the degree of Doctor of Business Administration or Doctor of Public Administration by the Committee on Doctoral Studies.

RESIDENCE

The Committee on Doctoral Studies expects all students to remain registered (see minimum hour-load requirements, page 27) until *all* degree requirements are satisfied, although there is no formal regulation concerning the minimum amount of time of study either in preparation for the General Examination or as a doctoral candidate engaged in research. The student who undertakes either part of the doctoral program on full or limited schedule must maintain "continuous registration" under the School of Government and Business Administration even when he is granted a leave of absence for study or residence elsewhere. By failing to register for one semester or more, the student breaks his registration and must apply for readmission to the School under whatever new conditions and regulations are set up by the Committee or the member of the Faculty who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain continuous registration by paying the continuous registration fee for the semester immediately preceding the graduation at which he expects to receive his degree.

Special Programs

GOVERNMENT MANAGEMENT INTERN SCHOLARSHIP PROGRAM

THE GOVERNMENT MANAGEMENT INTERN SCHOLARSHIP PROGRAM offers annually fifty scholarships to assist federal agencies in training carefully selected young men and women for administrative leadership in government career service. Each scholarship provides a tuition-free course of 3 hours a semester and appropriate academic credit (up to 6 semester hours) for the successful completion of training assignments required in any agency whose training program has been approved for this purpose by the University.

NAVY GRADUATE FINANCIAL MANAGEMENT PROGRAM

The Navy Graduate Financial Management Program, sponsored by the Naval Postgraduate School, provides 50 semester hours of work in financial management and related fields for a selected group of Naval and Marine officers. The Master of Business Administration degree is awarded upon successful completion of this full-year program.

GRADUATE PROGRAMS AT SENIOR SERVICE COLLEGES

The School of Government and Business Administration cooperates with the College of General Studies in the Off-campus programs of that College, particularly in the fields of accounting, business administration, financial management, governmental administration, and personnel administration. A special program leading to the degree of Master of Science in Business Administration has been established by the College of General Studies in cooperation with the School of Government and Business Administration for students and faculty of the Industrial College of the Armed Forces, Fort McNair, Washington, D.C.

COOPERATIVE PROGRAM IN URBAN AFFAIRS WITH VIRGINIA POLYTECHNIC INSTITUTE

A Washington Program in Urban Studies was instituted in the fall semester of 1964 in cooperation with the faculty of Urban and Regional Planning of the College of Architecture of Virginia Polytechnic Institute. Under this program a faculty member and a group of students from VPI live and study at The George Washington University during the fall semester each year. The program consists of lectures and seminars in addition to studio problems, studies in housing, urban design, intergovernmental relations, and urban renewal. Courses offered under this program are available to students majoring in metropolitan administration and urban affairs and in urban and regional planning. Students desiring to participate in this program should consult with their advisers or the Chairman of the Department of Public Administration.

CONTINUING EDUCATION IN HEALTH CARE ADMINISTRATION

A nondegree program is conducted in the various areas of health care administration both on campus and off campus whenever a sufficiently large class is organized. Institutes, workshops, and lecture series are conducted under the auspices of program faculty and selected leaders from local, state, and regional

areas on topics of current interest to the requesting organization. No specific prerequisite is required. Fees are to be announced.

THE INTERNATIONAL INSTITUTE FOR HEALTH CARE ADMINISTRATION

In recognition of special educational needs of students from other countries, The International Institute for Health Care Administration offers programs of instruction designed to meet these requirements either at degree or certificate level.

It is also equipped to enter into arrangements with principals of hospital systems in world-wide areas to assist in the preparation of teaching programs, or the actual instruction of administrative personnel either abroad or at the University.

THE MANAGEMENT RESEARCH GROUP

The Management Research Group seeks to serve government and industry and commerce by contributing to the development and understanding of basic theory in the field of management. The Group also provides assistance in translating theory into practice.

Relationships and techniques important to modern information flow and managerial decision making are stressed. The research conducted extends to system design, analysis of system performance, and the evaluation of practice in relation to managerial criteria.

CERTIFICATION OF CHARTERED LIFE UNDERWRITERS

The Department of Business Administration cooperates with the District of Columbia Chapter of the Chartered Life Underwriters in sponsoring courses designed to prepare candidates for certificate examination. Inquiries should be addressed to the Chairman of the Educational Committee, District of Columbia Chapter, CLU, Suite 1020, 1100 Vermont Avenue, N.W., Washington, D.C. 20005; or telephone: 223-4000.

CERTIFICATION OF PUBLIC PURCHASING AGENTS

The Department of Business Administration participates in the National Institute of Governmental Purchasing professional certification program. Courses and examinations leading to qualification as "Certified Public Purchasing Officer" (CPPO) are provided. Inquiries may be directed to the Department or to the National Institute of Governmental Purchasing, 1001 Connecticut Avenue, N.W., Washington, D.C. 20036.

OFF-CAMPUS DEGREE PROGRAMS

The School of Government and Business Administration has academic jurisdiction over off-campus programs leading to the following degrees: Bachelor of Science in General Studies with concentrations in accounting and business administration, Master of Science in Administration, and Master of Science in Business Administration.

These degree programs are administered by the College of General Studies. For details concerning the off-campus programs, see the College of General Studies Catalogue.



SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Dean H.M. Stout

FACULTY—ACADEMIC YEAR 1967-68

Professors Joseph Aschheim, J.W. Brewer, A.E. Burns, R.H. Davison, C.E. Galbreath, Andrew Gyorgy, H.C. Hinton, W.C. Hopkins, Tso-liang Hsiao (*Visiting Research*), Walter Inman, W.H. Kraus, H.L. LeBlanc, Kurt London, H.M. Merriman, F.H. Michael, J.N. Mosél, Benjamin Nimer, R.E. Purcell, H.M. Sachar, C.B. Sargent (*Visiting*), George Stambuk, C.T. Stewart, Jr., H.M. Stout, R.B. Thompson, D.S. Watson, R.K. White, Helen Yakobson

Adjunct Professor P.F. Gallagher

Associate Professors P.P. Hill, Ching-Yao Hsieh, W.R. Johnson, R.S. Jordan, Vladimir Petrov, Sidney Ploss (*Research*), R.Y. Yin

Assistant Professors Don Allensworth, C.F. Elliott, J.K. McDonald, J.A. Morgan, Jr., Bernard Reich, Richard Thornton

COMMITTEES*

DEAN'S COUNCIL

Don Allensworth, C.F. Elliott, Andrew Gyorgy, P.P. Hill, H.C. Hinton, R.S. Jordan, H.L. LeBlanc, J.A. Morgan, Jr., Vladimir Petrov

COMMITTEE ON PROGRAMS AND CURRICULUM

C.E. Galbreath (*Chairman*), R.H. Davison, H.L. LeBlanc, H.M. Merriman, George Stambuk

ADVISORY COUNCIL ON THE INSTITUTE FOR SINO-SOVIET STUDIES

H.M. Stout (*Chairman*), Joseph Aschheim, W.R. Johnson, W.H. Kraus, Kurt London, F.H. Michael, Benjamin Nimer, R.B. Thompson, Helen Yakobson

COMMITTEE ON ADMISSIONS AND ADVANCED STANDING

J.W. Brewer (*Chairman*), Andrew Gyorgy, P.P. Hill, H.C. Hinton, J.A. Morgan, Jr.

* The Dean of the School is an ex officio member of all committees.

INTRODUCTION

The study of Government was first organized as a separate entity in the University in 1898 with the establishment of the School of Comparative Jurisprudence and Diplomacy. In 1928, this School was reorganized and broadened as the School of Government. During the next two decades, programs in business administration and public administration were added, and the emphasis gradually shifted from undergraduate to graduate study. The name was changed in 1960 to the School of Government, Business, and International Affairs to reflect more accurately the offerings of the School. A division of the School was effected in 1966, and two schools were established—the School of Government and Business Administration, a primarily professionally-oriented school; and the School of Public and International Affairs, a primarily policy-oriented school.

Programs of the School of Public and International Affairs are interdisciplinary, and emphasize governmental policy, both domestic and foreign.

Students in the freshman and sophomore years are registered in the lower division of Columbian College of Arts and Sciences, the liberal arts college of the University. Here they are assigned special advisers from this School to assist them in planning their programs.

ACADEMIC PROGRAMS

Programs in the fields of International Affairs and Public Affairs are available within the School of Public and International Affairs. Special programs in Soviet, Chinese, and East European studies are offered by the School's Institute for Sino-Soviet Studies.

OBJECTIVES

Each of the two undergraduate programs of study is aimed at preparing the student to understand major contemporary issues in international affairs or in domestic public affairs. The programs are designed not to produce narrow professional specialists, but to foster a liberal education, interdisciplinary in nature and broader than a concentration in one of the conventional disciplines. In each program there is a double effort: to develop a background as broad and as deep as possible in order to assist in the understanding and analysis of modern problems, and to give instruction in some useful tools of analysis.

The graduate programs leading to the degree of Master of Arts are more concentrated. The student is expected to develop a greater competence in an area or a discipline, building on his undergraduate program in preparation for professional employment in government, in international organizations, in business, or in private agencies concerned with public or international affairs.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 21–30; other University regulations, on pages 40–46.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

The student is held responsible for all the work of the courses in which he is registered, and all absences must be excused by the instructor in charge before provision is made for him to make up the work missed.

A student suspended for any cause may not attend classes during the period of suspension.

The Degree of Bachelor of Arts

THE SCHOOL OFFERS PROGRAMS leading to the degree of Bachelor of Arts in the fields of International Affairs and Public Affairs.

ENTRANCE REQUIREMENTS

The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 73-74), or the equivalent.

REQUIREMENTS FOR THE DEGREE**ACADEMIC WORK LOAD**

A full-time student not on probation may not ordinarily take more than 15 semester hours. A student employed more than 24 hours a week, who is not on probation, may not take more than 9 semester hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 18 semester hours. A student employed more than 24 hours a week, whose index is 3.50 or higher, may take up to 12 semester hours.

A student who accepts employment after registration or at any time during a semester must report immediately to the Dean, so that his program may be adjusted if necessary.

Exception to these rules will require the approval of the Dean.

SCHOLARSHIP

In order to graduate, a student must have the following: (1) a general quality-point index of at least 2.00 and (2) an index in his major of at least 2.50. The major includes the required courses and courses taken in the group options.

DEAN'S HONOR LIST

The names of students who achieve a quality-point index of 3.50 or higher are placed on the Dean's Honor List for that semester. Appearance on the List will be limited to (1) full-time students registered for a minimum of 12 semester hours and (2) part-time students registered for a minimum of 12 semester

hours over a period of two consecutive semesters, which may include a summer term.

PROBATION

A student whose quality-point index falls below 2.00 after completing a minimum of 12 semester hours of study, will be placed on probation. This probation extends over the period in which the student attempts 12 semester hours of work which may include remedial studies as prescribed.

SUSPENSION

A student whose quality-point index is 1.50 or below or whose index remains below 2.00 at the end of his probationary period may be suspended. A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. To be considered for readmission, he must pass prescribed tests and submit evidence to the Dean's Council that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student readmitted after suspension is on probation and must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed while registered in the School of Public and International Affairs. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted toward the residence requirement, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in the School of Public and International Affairs.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

CREDIT/NO CREDIT OPTION (see page 41)

STUDY ABROAD

Students wishing to study abroad must consult with their advisers and the Dean, because arrangements must be made on an individual basis. Students of international affairs are encouraged to travel and study abroad.

CORRESPONDENCE AND HOME-STUDY COURSES

Credit for correspondence or home-study courses is not acceptable and cannot be applied toward a degree.

CURRICULUM REQUIREMENTS

To be recommended by the Faculty for graduation, candidates are required to complete, in addition to the appropriate freshman and sophomore work, a minimum of 60 semester hours during the junior and senior years, as set forth in one of the following curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS

A required course may be waived by the satisfactory passing of a waiver examination authorized and prescribed by the department or curriculum adviser concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Request to take the examination should be made to the curriculum adviser and the required fee paid at the Office of the Cashier before the date set for the examination.

INTERNATIONAL AFFAIRS

The International Affairs program covers international political relations, international economics, international communications, and regional studies. Its purposes are to provide an understanding of the forces operative in the contemporary world—political, economic, and social—and to give the student an awareness of major international problems and the role of the United States as a world power.

All International Affairs majors must complete 30 semester hours of required courses (see page 345), 15 hours to be selected in consultation with the adviser from one of the following group options, and 15 hours of electives.

Group I: International Politics—Courses concerned with theory and practice in international affairs, forces shaping the world scene, and American foreign policy.

Group II: International Economics—Courses concerned with the world economy and American policy and practice in international trade and finance.

Group III: International Communications—Courses concerned with the study of international information programs, public opinion, psychological warfare, cultural relations, and public relations.

Group IV: Area or Regional Studies—Integrated programs of study on Europe, Africa, the Middle East, the Far East, the Soviet Orbit, and Latin America.

PUBLIC AFFAIRS

The Public Affairs program is a composite curriculum dealing with domestic government and policy.

All Public Affairs majors must complete 30 semester hours of required courses (see page 345), 12 hours in a group option, either economics or politics (see page 345), and 18 hours of electives.

The Degree of Master of Arts

THIS SCHOOL OFFERS PROGRAMS leading to the degree of Master of Arts in the fields of International Affairs and Public Affairs.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) in the relevant undergraduate field, is required.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

GENERAL REQUIREMENTS

A 3.00 average in the undergraduate major is normally required for admission to graduate study. Deficiency in undergraduate preparation may be satisfied by (1) taking specified undergraduate courses and maintaining a 3.00 average in such courses or (2) passing a comprehensive examination in the major field. The examination may be taken only with the Dean's approval upon recommendation of the curriculum adviser.

The programs leading to the degree of Master of Arts require a minimum of 30 semester hours of work, including 24 hours of course work and a thesis equivalent to 6 semester hours. Most individual student programs exceed 30 hours, dependent upon the undergraduate major and other prerequisites.

Master's degrees are awarded by vote of the Faculty on completion of the required course work, an acceptable thesis or the equivalent, and the passing of the Master's Comprehensive Examination. An applicant whose background does not include the necessary courses or equivalent work experience must take a program longer than the minimum hours required.

Second-group courses (numbered 101–200) may be counted toward the Master's degree only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

All work for a Master's degree must be completed in five years, unless an extension of time is granted by the Dean.

No credit is granted for work done *in absentia* or without formal instruction, except for the thesis, which may be completed *in absentia* with the permission of the curriculum adviser and the Dean.

A student who expects to continue his studies for the degree of Doctor of Philosophy in the field of International Relations after receiving the Master's degree in the field of International Affairs is strongly advised to plan his program from the beginning so that work for the lower degree will fit into a subsequent doctoral program in the Graduate School of Arts and Sciences (see pages 83–85, 87–88).

FOREIGN LANGUAGE REQUIREMENTS

A candidate for the degree of Master of Arts must show that he has a reading knowledge (certified by the appropriate language department) of at least one modern foreign language, to be approved by the Dean. The language examination should be taken before the student begins the second 15 hours of his work. No student may take the examination more than three times.

MASTER'S COMPREHENSIVE EXAMINATION

In addition to any course examinations the candidate must pass a written Master's Comprehensive Examination. Examinations are scheduled two times a year (usually in December and April), and should be taken during the last semester of course registration or shortly after the completion of the prescribed course work. If there is a lapse of time between completion of course work and the examination, the student must maintain "continuous registration" during this period. The candidate must consult with his adviser, well in advance, as to the date of his examination and the definition of the subject-matter fields which this examination is to cover. An oral examination on his thesis or major report may also be required.

SCHOLARSHIP

Grades for graduate work are *A*, outstanding; *B*, high quality; *C*, minimum quality; *F*, failure; *I*, incomplete; and *CR*, credit.

An average of *B* or better is required for the Master's degree. The grade of *C* is not considered as failing but must be counter-balanced by a grade of *A* in a graduate course of equal status.

A Master's candidate who receives a grade of *F* is required to present cause for consideration by the Dean's Council as to why he should be allowed to continue his studies.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course.

THE THESIS

The thesis subject should be selected as early as possible so as to permit effective integration with the course work.

The subject must be approved by the student's adviser. The thesis in its final form must have the approval of the professor in charge and must be presented to the Dean by the student no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the period of registration, to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional

the degree of Master of Arts in the field of economics, history, or political science in the Graduate School of Arts and Sciences, with a specialization in Sino-Soviet Studies, may take one-half of their course work from the Institute's program.

Students working toward the degree of Doctor of Philosophy in International Relations with special emphasis on the Sino-Soviet Area are expected to combine work in the Institute with work in the fields of economics, history, and political science. Doctoral candidates in the field of political science may combine work in the Institute with work in an appropriate number of fields within political science. All work leading to the degree of Doctor of Philosophy is under the general supervision of the Graduate School of Arts and Sciences and Consultative Committees designated by it which direct the work of each graduate student upon admission to degree candidacy. Doctoral candidates in political science and other disciplines may assume that their committees in consultation with them will arrange for an appropriate combination of fields concerned with Sino-Soviet Studies with work in other phases of their disciplines. A candidate for such a degree should assume that his committee will require the substitution of a reading examination in Chinese or Russian for one of the two Western languages normally required for the degree.

RESEARCH

Research work is integrated with the teaching program. Members of the research program belong to different disciplines and include not only faculty but also selected graduate students. Research monographs are being published by the Institute.

A special brochure describing in more detail the work of the Institute is available upon request.

INTERUNIVERSITY RESEARCH COLLOQUIA

Scholars from The George Washington University, American University, Howard University, and the University of Maryland conduct two interuniversity research colloquia. The Colloquium on Modern China is under the chairmanship of Professor Franz Michael, Associate Director of the Institute for Sino-Soviet Studies; the Colloquium on Russia and Eastern Europe is under the chairmanship of Professor Kurt London, Director of the Institute for Sino-Soviet Studies. Research in progress undertaken by members of the colloquia and plans for future research are discussed at weekly meetings. Advanced graduate students can be admitted on approval of the chairman concerned. They receive 3 semester hours of academic credit for each semester of participation.

CERTIFICATE OF THE INSTITUTE FOR SINO-SOVIET STUDIES

The Institute for Sino-Soviet Studies offers a Certificate in Sino-Soviet Studies for students who wish evidence of the completion of specialized studies on the Soviet Union, Eastern Europe, and/or China. Candidates for advanced degrees and qualified nondegree students may apply for the Certificate upon the completion of the requirements set forth below.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) is required.

The applicant's undergraduate program should include background courses corresponding to an undergraduate major in International Affairs at this University, with emphasis on the Soviet Union and China (see page 345). Any deficiencies in the applicant's study of the Soviet Union and China must be satisfied by appropriate undergraduate courses, as specified by his adviser in addition to the requirements for the Certificate.

REQUIREMENTS FOR THE CERTIFICATE

The program consists of 30 semester hours of graduate study and the passing of a reading examination in Russian or Chinese, or both. Each program is planned in consultation with the Director of the Institute or one of his associates. Since the Institute places emphasis upon the interdisciplinary approach to study and research, the student can expect his program to include work in economics, geography, history, law, literature and culture, political systems, political theory, and psychology.

Although the student's background and prior study determine to a considerable extent his program in the Institute, intensive research in either country should run concurrently with seminars listed in the annual program of the Institute.

RESIDENCE

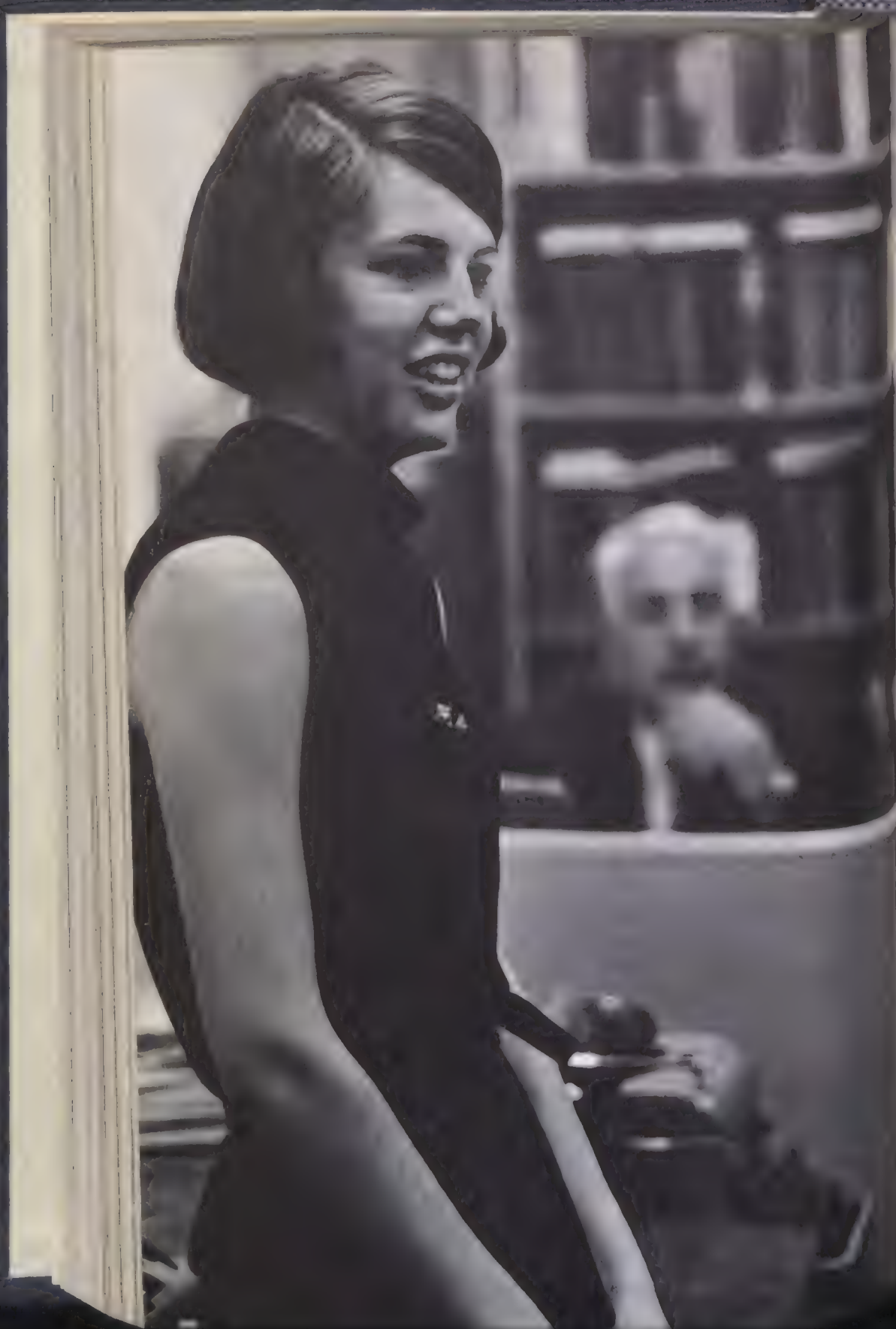
All of the work for the Certificate must be taken in residence in the School of Public and International Affairs, as a candidate for the Certificate; and all of the work must be completed in a maximum of three years, unless an extension of time is granted by the Dean.

War College Programs

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS cooperates with the College of General Studies Off-campus programs at the National and the Naval War Colleges leading to the degree of Master of Science in International Affairs. Admission is limited to selected members of the faculty and student bodies of the War Colleges.

The programs of study are complementary to the portions of the War College curricula pertaining to international relations, national strategy, and foreign policy.





THE DIVISION OF UNIVERSITY STUDENTS*

Dean J.G. Allee, Jr.

Director of the Secondary School Honors Program, Jean Gladding

THE DEAN'S COUNCIL†

J.G. Boswell, A.H. Desmond, Hewitt Kenyon, J.A. Morgan, Jr., R.L. Williams

INTRODUCTION

THE DIVISION OF UNIVERSITY STUDENTS was established in 1930 to make the regular course offerings of the University more generally available to members of this metropolitan community and others, not at the time candidates for degrees in this University. In this Division are registered students who wish to undertake university courses for credit or as auditors. University Students, often employed in government or industry, may be taking courses to increase their vocational fitness or to inform them on new developments in the arts and sciences. They may be taking courses as a matter of personal interest for cultural enrichment. Such students may be candidates for higher degrees in other institutions, sent here for special work as part of a graduate program. They may be undergraduates, matriculated in other colleges, taking summer sessions courses only or courses for transfer during the regular academic year with the approval of their own institution. To serve members of such groups and others, not enrolled in degree-granting branches of the University, is the function of the Division of University Students.

The privilege of attending The George Washington University as a nondegree student is granted on the basis of maturity and proper preparation. Because no degree at The George Washington University is involved, there can be no meaningful advisory system in the Division. However, students are invited to seek advice from academic departments. University Students are urged to apply to the Office of Admissions for transfer to degree-granting branches whenever such action is appropriate.

All courses except those restricted to medical and law students and those limited to specific degree candidates are open to students in the Division of University Students. Students wishing to take Engineering and Applied Science courses, see the School of Engineering and Applied Science Catalogue.

* The listing of Administrative Officers is for 1967-68.

† The Vice President for Academic Affairs, the Dean of the Division, and the Director of the Secondary School Honors Program are *ex officio* members of the Council.

Registration in a given course may be denied students in this Division when space is needed for degree candidates.

An applicant who has been denied admission to any degree-granting branch of the University will not be considered for admission to the Division of University Students for the semester for which the applicant was denied. Such an applicant may be considered in subsequent semesters.

ENTRANCE REQUIREMENTS*

Good character and an academic background appropriate for the program of studies contemplated are required.

A person not working for a degree at this University will be considered for admission to the Division of University Students to take courses for which he has adequate preparation, as determined by the departments concerned.

SCHOLASTIC RECORDS

Scholastic records are required of

1. An applicant who graduated from high school within the previous two calendar years. Such an applicant must meet the following requirements, which are the same as those for admission to Columbian College of Arts and Sciences.
 - a) An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units† which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.
 - b) The principal's statement that the applicant is prepared to undertake college work.
 - c) College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test, the English Composition Achievement Test, and two additional achievement tests in subjects reflecting the student's major interests.
2. An applicant who has been subject to any form of academic or disciplinary action at any college or university within the previous calendar year.
3. High school students who are applying for the Secondary School Honors Program, see pages 158-59.

Scholastic records may be required of

1. An applicant who has attended any college or university during the previous calendar year.
2. A former student of this University who was on probation or suspended and, since then, has attended another college or university.

* Foreign students, see pages 24-25.

† A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

3. An applicant who has ever been subject to academic or disciplinary action. When scholastic records are required, a student may be admitted for one semester or summer term only, pending receipt of records and under provisions stated by the Office of Admissions.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 21-30; other University regulations, on pages 40-46.

Prospective and registered students are urged to acquaint themselves with the regulations concerning "Attendance," see page 40, and "Withdrawal," see page 42.

ACADEMIC WORK LOAD

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of this Division may be dismissed from the University.

GRADES

Undergraduate.—See pages 40-41.

Graduate.—For graduate work, grades are indicated as *A*, excellent; *B*, satisfactory; *C*, low pass; *F*, unsatisfactory; *I*, incomplete; *CR*, credit.

PROBATION AND SUSPENSION

A student taking only first- and second-group courses must maintain a quality-point index of 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00. If his index falls below 1.50, he is subject to suspension.

A student who has a Bachelor's degree, or its equivalent, or who is taking or has taken any third- or higher-group course must maintain a quality-point index of 2.00 in all first-group courses and 3.00 in all higher-group courses or be placed on probation. He remains on probation as long as his index is below 2.00 in first-group courses and/or 3.00 in higher-group courses. If his index falls below 1.50 in first-group courses or 2.25 in higher-group courses, he is subject to suspension. The exception to the above will be that whenever the cumulative index (combined index courses of all groups) is raised to 3.00 by grades achieved in higher-group courses the student will not be placed on pro-

bation; however, the index achieved in first-group courses cannot offset the index of the higher-group courses.

CHANGES IN PROGRAM OF STUDIES

Changes within the Division of University Students.—A student may not change or drop courses (see "Withdrawal," page 42) or change his status to that of auditor except with the approval of the Dean.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Transfer within the University.—Transfer to or from the Division of University Students may be made only with the approval of the deans concerned.

Application for transfer to degree candidacy will be considered only after the completion of at least one semester in the Division of University Students.

The student currently or previously registered in this Division who wishes transfer to degree candidacy should understand that consideration will be given to only those courses which are approved as applicable toward the degree sought and that a maximum of 45 semester hours of such credits earned in this Division can be applied toward a Bachelor's degree. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill.

Normally, all work toward a Master's degree must be done in residence in the degree-granting college or school. A student planning to do graduate work in the School of Education, the School of Engineering and Applied Science, the School of Government and Business Administration, or the School of Public and International Affairs should consult with the relevant degree-granting school in order to comply with the pertinent regulations concerning transfer.

A student who is enrolled in the Division of University Students or is entering that Division, and expects to transfer credit for course work toward a degree in the Graduate School of Arts and Sciences, *must* have the written approval of the department concerned and the Graduate School of Arts and Sciences prior to the completion and transfer of such credits.

SECONDARY SCHOOL HONORS PROGRAM

The outstanding secondary school student in the Washington metropolitan area who wishes to enrich his academic background and participate in stimulating college work is encouraged to seek admission to The George Washington University's Secondary School Honors Program. The Honors Student is enrolled in regular college courses of his own choosing appropriate to his level of study, his background, and his aptitude as determined through consultation with his high school counselors and advisers at the University.

Credit earned in the Program is applicable toward a degree at The George Washington University should the student later matriculate here. The transfer of credit elsewhere depends upon the policies of the individual schools to which the student might later apply.

Admission to the Honors Program is highly competitive. Only 15 students a semester will be admitted in this Program, but each student will receive a scholarship totaling 50 per cent of his tuition (excluding laboratory fees). Admission is for one semester only, but students doing well will be given prefer-

ence for continuation and may be readmitted for a second semester. Criteria for admission include a transcript of the student's grades to date, available test scores, evidence of emotional and intellectual maturity, and the results of the interview with the Director.

Application forms and further information may be obtained from Miss Jean M. Gladding, Director of the Secondary School Honors Program, Division of University Students, The George Washington University, Washington, D.C. 20006. No applications will be considered after September 1 for the fall semester or January 1 for the spring semester. For application for the summer session see the Summer Sessions Catalogue.



THE SUMMER SESSIONS

Dean C.W. Cole

Assistant Dean R.L. Williams

DURING THE SUMMER OF 1968, Columbian College of Arts and Sciences, the Graduate School of Arts and Sciences, the School of Engineering and Applied Science, the School of Government and Business Administration, the School of Public and International Affairs, and the Division of University Students offer courses in two 5-week sessions, with some graduate seminars and courses extending over an 8-week period; the National Law Center offers courses in two 6-week sessions and one 13-week session; the School of Education offers courses in a 6-week session and three 3-week workshop sessions. In addition, a carefully planned group of special programs will be offered on campus to serve a variety of student needs.

For a complete statement concerning summer-term work, see the Summer Sessions Catalogue.



PROGRAM OF POLICY STUDIES IN SCIENCE AND TECHNOLOGY

Director L.H. Mayo

THE PRIMARY OBJECTIVE of the Program of Policy Studies in Science and Technology is to encourage the continuing development of a University policy research capability directed toward the complex issues confronting society. The Program undertakes to serve as an organizing element and to provide a forum for the discussion and analysis of policy problems—current and prospective—within areas of interest and competence in the University.

Activities of the Program reflect a number of ways in which a wide range of interdisciplinary talents can be brought to bear upon the analysis of policy problems, particularly those involving a significant scientific or technological component.

By means of the Program of Policy Studies in Science and Technology, The George Washington University is moving toward an institutional approach to the policy analysis function as contrasted with the highly fragmented and largely uncoordinated pattern of "institutes," "centers," and "study groups" which exists at most universities. The Program of Policy Studies concept is novel in its attempt to provide an organization that strengthens the University's ability to address itself to broad issues of public policy. This approach envisages a continuing interaction among the professional staffs of the Program of Policy Studies in Science and Technology, other policy research groups, and other faculty members of the schools and departments of the University.

A basic test of the degree to which the Program of Policy Studies can advance the development of a University policy analysis capability is the extent to which it can effectively organize an "institutional response" to policy issues. This notion presupposes a coordinated group effort as distinguished from an individual effort or even a number of fragmented individual treatments of a given policy issue.

While the Program of Policy Studies is vitally concerned with its organizational objective of developing an Institutional Response Mechanism which, within certain limitations, can handle a variety of policy analysis problems, it also supports or conducts a number of activities, including studies; monographs; professional seminars with government, industry, policy research, and university representatives; and advanced University courses and seminars in the area of Science, Society, and Public Policy.

STAFF*

Guy Black, *Associate Research Professor of Business Economics*
 David S. Brown, *Professor of Public Administration*
 James M. Brown, *Associate Professor of Law*
 John Cibinic, Jr., *Associate Professor of Law; Director, Government Contracts Program*
 Clarence H. Danhof, *Professor of Economics*
 Richard F. Ericson, *Professor of Business Administration*
 Gilbert J. Ginsburg, *Associate Professor of Law; Assistant Director, Government Contracts Program*
 Harold P. Green, *Professor of Law; Director, Law, Science, and Technology Program*
 John Hanessian, Jr., *Associate Professorial Lecturer in Political Science*
 Norman Kaplan, *Professor of Sociology*
 James Mahoney, *Senior Staff Scientist*
 Joseph B. Margolin, *Associate Professorial Lecturer in Psychology*
 Barbara S. Marx, *Research Scientist*
 Louis H. Mayo, *Professor of Law; Vice President for Advanced Policy Studies*
 Marion R. Misch, *Research Associate*
 Clarence C. Mondale, *Associate Professor of American Literature*
 Ellis Mottur, *Senior Staff Scientist*
 Ralph C. Nash, Jr., *Professor of Law; Associate Dean of the National Law Center, for Graduate Studies, Research, and Projects*
 Janet Porter, *Research Associate*
 Addison M. Rothrock, *Professor of Applied Science*
 Bernard A. Schriever, *Senior Staff Scientist*
 Robert G. Smith, *Senior Staff Scientist (Systems Analysis)*
 Charles T. Stewart, Jr., *Professor of Economics*
 Michael J. Wollan, *Research Associate*

ADVISORY COMMITTEE

Chairman: Lloyd H. Elliott, *President, George Washington University*
 Vice Chairman: Bernard A. Schriever, *General, USAF (Ret.)*
 Raymond L. Bisplinghoff, *Head, Department of Aeronautics, Massachusetts Institute of Technology*
 Harold F. Bright, *Vice President for Academic Affairs, George Washington University*
 Arthur E. Burns, *Dean, Graduate School of Arts and Sciences, George Washington University*
 Joseph L. Fisher, *President, Resources for the Future, Washington, D.C.*
 Lawrence Levy, *President, Allied Research Associates, Concord, Mass.*
 Dwight Waldo, *Albert Schweitzer Professor in the Humanities, Syracuse University*
 Reuben E. Wood, *Professor of Chemistry, George Washington University*

* Staff listing, as of September 1, 1967, consists of those members who will allocate all or a substantial portion of their effort to Program activities during 1967-68. Directors and members of the staffs of other policy study groups in the University will also participate in the various seminar series, conferences, and other activities of the Program.

SPONSORED RESEARCH

Administrator of the Office of Sponsored Research N.M. Head

THE RESEARCH PROGRAMS listed in this section are special programs which are established for the specific purpose of attacking in an academic atmosphere problems proposed by the individual projects or submitted by the sponsoring agency. Cooperation between these programs and the various departments of instruction is as close as the nature and needs of the programs and departments will permit.

BIOLOGICAL SCIENCES COMMUNICATION PROJECT

The primary aim of the project is to study and facilitate the flow of information from the producer of life science information to the ultimate consumer. Studies associated with the nature and control of the literature in the life sciences are undertaken as well as investigations of the communication practices of the individuals involved. Associated with this primary aim are educational, service, and consultative activities.

The major portion of work accomplished by this project is federally sponsored. Completed research is reported in *Communique*.

Charles W. Shilling, M.D., *Director*
Irvin C. Mohler, M.S., *Assistant to the Director*
Mildred C. Benton, B.A., *Senior Staff Scientist*
Bruce Berman, M.A., *Senior Staff Scientist*
Thomas W. Cales, M.S., *Senior Staff Scientist*
Quentin L. Hartwig, Ph.D., *Senior Staff Scientist; Associate Professorial Lecturer in Physiology*
Charles E. King, Ph.D., *Senior Staff Scientist*
Leslie A. Kulp, Ph.D., *Senior Staff Scientist*
Mary Shipp Watson, M.A., *Senior Staff Scientist*
John W. Johnston, B.S., *Senior Scientist*
Olga Lendvayova, M.L.S., *Senior Scientist*
Frances Tersillo, M.L.S., *Research Scientist*

BIOMETRIC LABORATORY

The Biometric Laboratory applies statistical techniques to pharmacological problems related to mental health. It was established under a contract with the National Institutes of Health. The laboratory assists investigators throughout the

United States in planning research and in analyzing data. The majority of these research projects concern the effects of drugs on behavior.

Roland R. Bonato, Ph.D., *Director; Assistant Research Professor of Psychology*
 Kenneth Chi-Kun Yang, B.A., *Assistant Director*
 Leonard R. Derogatis, Ph.D., *Senior Staff Scientist*
 William Guy, Ph.D., *Senior Staff Scientist*
 James J. McKeon, Ph.D., *Senior Staff Scientist*
 Robert F. Prien, Ph.D., *Senior Staff Scientist*
 Richard W. Switalski, M.S., *Senior Scientist*
 Naoma F. Belkin, B.A., *Research Scientist*
 Clarence I. Butte, *Research Scientist*
 Anne K. Cartwright, *Research Scientist*
 David Davis, B.S., *Research Scientist*
 Robert Lazar, B.A., *Research Scientist*
 Arden Smith, B.S., *Research Scientist*

COMMISSION ON UNDERGRADUATE EDUCATION IN THE BIOLOGICAL SCIENCES

The Commission on Undergraduate Education in the Biological Sciences is one of eight similar groups that have been established with the support of the National Science Foundation to serve as planning and coordinating groups for the improvement of college and university education in the sciences and mathematics. The Commission is designed to study the problems of undergraduate education in biology, and to provide advice, stimulation, help, and encouragement to individual faculty members, institutions, and professional societies engaged in the improvement of biology instruction. While the Executive Office of the Commission functions under the auspices of The George Washington University, biologists involved in the Commission's activities are drawn from colleges, universities, and agencies throughout the country. The Chairman of the Commission is Henry Koffler, Ph.D., of Purdue University.

Martin W. Schein, D.Sc., *Director, Executive Office, Commission on Undergraduate Education in the Biological Sciences; Visiting Professor of Biology*
 Dana L. Abell, Ph.D., *Visiting Professor of Biology*
 Thomas G. Overmire, Ph.D., *Senior Staff Scientist; Visiting Professor of Biology*
 Jeffrey J.W. Baker, M.S., *Staff Biologist; Visiting Associate Professor of Biology*

COMPUTER PROGRAMS RESEARCH PROJECT

The purpose of the Computer Programs Research Project is to develop general purpose computer programs for the Division of Research Grants of the National Institutes of Health. The current activities of the project include analysis of data gathering and data processing activities, examination of numerous specific problems for common elements that can be resolved by a single generalized computer program, and developing and testing these programs on the IBM 360 system. Research efforts are directed toward producing limited information retrieval systems.

Richard S. Enburg, Ph.D., *Director*
 William C. Ferguson, Jr., *Assistant Director*

EDUCATION RESEARCH PROJECT

The Education Research Project is engaged in basic and applied research in all aspects of education. Working with the School of Education, it provides for faculty and graduate students an opportunity for more direct and active participation in the continuous evaluation and renewal of the American education systems and processes. The work of this project is carried out under contracts and grants from the U.S. Office of Education and other private and governmental agencies.

Clinton A. Neyman, Jr., M.A., *Director; Assistant Research Professor of Education*

HUMAN RESOURCES RESEARCH OFFICE

The Human Resources Research Office (HumRRO) was originally established in 1951 to carry out an integrated program of human resources research for the Department of the Army. HumRRO research may now be performed for other departments of the Federal Government, as well as with state and local governments and with organizations which support training and educational research. HumRRO's mission involves development of the technology of training and education, research and development on specific problems in training and education, research on leadership and management and training for these, studies of techniques for motivating training and performance, studies of human performance in military and educational systems, and the teaching of the technology of training and education.

OFFICE OF THE DIRECTOR

Meredith P. Crawford, Ph.D., *Director*

William A. McClelland, Ph.D., *Associate Director; Professorial Lecturer in Psychology*

Eugene A. Cogan, Ph.D., *Assistant Director for Reporting*

Carl J. Lange, Ph.D., *Assistant Director for Planning*

Charles W. Smith, J.D., *Business Administrator*

Robert G. Smith, Jr., Ph.D., *Assistant Director for Operations*

Saul Lavisky, M.A., *Research Information Coordinator*

Lola M. Zook, B.A., *Editorial Adviser and Publications Manager*

Albert I. Shepherd, Ed.M., *HumRRO Representative at Headquarters USCONARC*

INFORMATION PROCESSING SERVICES

David S. Hoffman, M.S., *Senior Staff Scientist*

Edgar M. Haverland, Ph.D., *Senior Scientist*

DIVISION NO. 1 (SYSTEM OPERATIONS), ALEXANDRIA, VIRGINIA

J. Daniel Lyons, Ph.D., *Director of Research*

C. Dennis Fink, Ph.D., *Senior Staff Scientist*

A. James McKnight, Ph.D., *Senior Staff Scientist*

Robert J. Seidel, Ph.D., *Senior Staff Scientist*

Richard A. Ibison, Ph.D., *Senior Scientist*
Felix Kopstein, Ph.D., *Senior Scientist*
Roy M. Proctor, M.A., *Senior Scientist*
Richard D. Behringer, Ph.D., *Research Scientist*
Patrick J. Butler, M.A., *Research Scientist*
Marcia K. Harrington, M.A., *Research Scientist*
Herbert B. Leedy, Ph.D., *Research Scientist*
Miriam A. Safren, Ph.D., *Research Scientist*
Harold Wagner, Ph.D., *Research Scientist*
Lowell W. Williams, M.S. in P.A., *Research Scientist*

DIVISION NO. 2 (ARMOR), FORT KNOX, KENTUCKY

Norman Willard, Jr., Ph.D., *Director of Research*
Robert A. Baker, Ph.D., *Senior Staff Scientist*
Donald F. Haggard, Jr., Ph.D., *Senior Staff Scientist*
Laban L. Ainsworth, Ph.D., *Senior Scientist*
Elmo E. Miller, Ph.D., *Senior Scientist*
Shepherd Schwartz, B.A., *Senior Scientist*
Eugene H. Drucker, M.A., *Research Scientist*
Walter J. Gunn, M.A., *Research Scientist*
William C. Osborn, M.S., *Research Scientist*
Richard M. Schulman, Ph.D., *Research Scientist*
Richard W. Sheldon, Ph.D., *Research Scientist*

DIVISION NO. 3 (RECRUIT TRAINING), PRESIDIO OF MONTEREY, CALIFORNIA

Howard H. McFann, Ph.D., *Director of Research*
Hilton M. Bialek, Ph.D., *Senior Staff Scientist*
Herbert G. Gerjuoy, Ph.D., *Senior Staff Scientist*
S. James Goffard, Ph.D., *Senior Staff Scientist*
John E. Taylor, Ph.D., *Senior Staff Scientist*
Robert Vineberg, Ph.D., *Senior Staff Scientist*
Joseph S. Ward, Ph.D., *Senior Staff Scientist*
John S. Caylor, Ph.D., *Senior Scientist*
Richard P. Kern, Ph.D., *Senior Scientist*
Robert D. McDonald, Ph.D., *Senior Scientist*
Ernest K. Montague, Ph.D., *Senior Scientist*
Morris Showel, Ph.D., *Senior Scientist*
Elaine N. Taylor, Ph.D., *Senior Scientist*
Wayne L. Fox, Ph.D., *Research Scientist*
Douglas L. Grimsley, Ph.D., *Research Scientist*
Thomas G. Sticht, Ph.D., *Research Scientist*
Kan Yagi, Ph.D., *Research Scientist*

DIVISION NO. 4 (INFANTRY), FORT BENNING, GEORGIA

T.O. Jacobs, Ph.D., *Director of Research*
Joseph A. Olmstead, Jr., Ph.D., *Senior Staff Scientist*
James W. Dees, Ph.D., *Senior Scientist*

Douglas S. Holmes, Ph.D., *Senior Scientist*
 Theodore R. Powers, M.A., *Senior Scientist*
 Arthur J. De Luca, M.A., *Research Scientist*
 Guillermo Mascaro, Ph.D., *Research Scientist*

DIVISION NO. 5 (AIR DEFENSE), FORT BLISS, TEXAS

Robert D. Baldwin, Ph.D., *Director of Research*
 Harry L. Ammerman, Ph.D., *Senior Scientist*
 Albert L. Kubala, Ph.D., *Senior Scientist*
 William H. Melching, Ph.D., *Senior Scientist*
 Paul G. Whitmore, Ph.D., *Senior Scientist*
 A. Dean Wright, M.S., *Senior Scientist*
 Harold E. Christensen, M.S., *Research Scientist*
 E. Wayne Frederickson, M.A., *Research Scientist*
 Gilbert L. Neal, Ph.D., *Research Scientist*
 Robert O. Wood, M.S., *Research Scientist*

DIVISION NO. 6 (AVIATION), FORT RUCKER, ALABAMA

Wallace W. Prophet, Ph.D., *Director of Research*
 Francis H. Thomas, Ph.D., *Senior Staff Scientist*
 Paul W. Caro, Jr., Ph.D., *Senior Scientist*
 Wiley R. Boyles, Ph.D., *Senior Scientist*
 Robert H. Wright, Ph.D., *Senior Scientist*
 H. Alton Boyd, M.S., *Research Scientist*
 Russel E. Schulz, M.A., *Research Scientist*

DIVISION NO. 7 (LANGUAGE AND AREA TRAINING), ALEXANDRIA, VIRGINIA

Arthur J. Hoehn, Ph.D., *Director of Research*
 Alfred J. Kraemer, Ph.D., *Senior Staff Scientist*
 Richard Beym, Ph.D., *Senior Scientist*
 George H. Brown, Ph.D., *Senior Scientist*
 Alfred I. Fiks, Ph.D., *Senior Scientist*
 Robert J. Foster, Ph.D., *Senior Scientist*
 Dean K. Froehlich, Ph.D., *Senior Scientist*
 John W. McCrary, Jr., Ph.D., *Senior Scientist*
 Arthur H. Niehoff, Ph.D., *Senior Scientist*
 Samuel G. Taxis, M.A., *Senior Scientist*
 Jose Armilla, Ph.D., *Research Scientist*
 Jack Danielian, Ph.D., *Research Scientist*
 Harley M. Upchurch, Ph.D., *Research Scientist*
 Dharam P. Yadav, Ph.D., *Research Scientist*

LOGISTICS RESEARCH PROJECT

The purpose of the Logistics Research Project is to study problems of logistics planning and control in order to develop methodology permitting effective solutions. Current areas of research are inventory; information systems; transportation; readiness; maintenance; and supporting research in mathematics, computer

sciences, economics, statistics, and operations research. A large-scale data processing facility is based upon IBM 7080 and 360 computers. This project is operated under a contract with the Department of the Navy.

William H. Marlow, Ph.D., *Principal Investigator; Professorial Lecturer in Mathematics*

Joseph P. Fennell, M.A., *Deputy Principal Investigator*

Sheldon E. Haber, Ph.D., *Deputy Principal Investigator; Associate Professorial Lecturer in Economics*

Henry Solomon, Ph.D., *Deputy Principal Investigator; Professor of Economics*

William E. Caves, *Senior Staff Scientist*

Byron Cosby, Jr., Ph.D., *Senior Staff Scientist*

Pratip N. RayChowdhury, Ph.D., *Senior Staff Scientist; Associate Professorial Lecturer in Engineering*

Erling F. Rosholdt, M.E.A., *Senior Staff Scientist*

Frank W. Segel, M.B.A., *Senior Staff Scientist*

Irwin S. Tolins, Ph.D., *Senior Staff Scientist*

Ross E. Tomlinson, M.A., *Senior Staff Scientist*

William L. Wilkinson, M.S., *Senior Staff Scientist*

William B. Gruttke, Ph.D., *Senior Scientist; Assistant Professorial Lecturer in Mathematics*

James E. Hamilton, M.S., *Senior Scientist*

Raymond W. Lewis, B.A., *Senior Scientist*

Arthur J. Nevins, Ph.D., *Senior Scientist*

George N. Reynolds, Ph.D., *Senior Scientist*

Donald D. Boyer, M.A., *Research Scientist*

Samuel J. Mathis, Jr., M.E.A., *Research Scientist*

S. Scott Sutton, M.A., *Research Scientist*

Che S. Tsao, Ph.D., *Research Scientist; Assistant Professorial Lecturer in Economics*

David A. Walker, M.S., *Research Scientist; Assistant Professorial Lecturer in Economics*

NAVAL ORDNANCE SYSTEMS COMMAND PROJECT

Investigations program on explosive ordnance disposal render-safe and demolition procedures.

Ralph O. Phillips, M.S., *Principal Investigator*

NUTRITION STUDY IN IRAN

Retardation in growth and other development has been observed to be widespread in Iran, and there is some evidence that this may be related to zinc deficiency. Investigations are being organized to study (1) nutrition factors which may be responsible for this retardation and (2) possible genetic factors.

Studies to identify specific end results, in conjunction with a research laboratory, are conducted at the Veterans Administration Hospital. This project operates under a contract from the National Institutes of Health.

James A. Halsted, M.D., *Director; Professor of International Health*

OPERATIONAL AND DEMOGRAPHIC ANALYSIS FOR MATERNAL AND CHILD HEALTH CARE PROJECT

This project is concerned with computer-supported research into the maternal and child mortality levels of the United States and the socioeconomic and health facilities factors which affect those levels. This project is operated under a grant from the Children's Bureau, Department of Health, Education, and Welfare.

Roland R. Bonato, Ph.D., *Director; Assistant Research Professor of Psychology*
Margaret Pratt, B.A., *Assistant Director*
Gerald L. Giesecke, B.S., *Senior Scientist*

SOCIAL RESEARCH GROUP

The Social Research Group conducts surveys and experiments with concentration on basic research underlying an approach to the solution of social problems.

Ira H. Cisin, Ph.D., *Director; Professor of Sociology*
Hugh J. Parry, Ph.D., *Associate Director; Professor of Sociology*
Don Cahalan, M.A., *Senior Staff Scientist*
Ben L. Owens, *Senior Staff Scientist*
Regis H. Walther, Ph.D., *Senior Staff Scientist*
Elaine F. Hayden, Ph.D., *Senior Scientist*
Carol H. Newcomb, M.A., *Senior Scientist*

STATE AND LOCAL FINANCES PROJECT

Work started during the academic year 1965-66 on a three-year study of advance fiscal budgeting in the states and communities, as a facet of economic development programs. Work is also underway on a demonstration of planning-programming-budgeting systems in five states, five counties, and five cities. This work is being carried out in cooperation with the Council of State Governments, the U.S. Conference of Mayors, and other organizations of governments.

Selma J. Mushkin, Ph.D., *Director; Research Professor of Public Finance*
Hugh J. Parry, Ph.D., *Associate Director; Professor of Sociology*
John F. Cotton, B.S., *Senior Staff Scientist*
Gabrielle C. Lupo, B.A., *Senior Staff Scientist*
Robert T. Richards, M.A., *Senior Staff Scientist*
James R. Cleaveland, M.S., *Research Scientist*

VOCATIONAL EDUCATION PROJECT

The general purpose of this activity is to demonstrate that a taxonomy for vocational education objectives developed during the previous year can be used profitably to measure, compare, and contrast vocational-technical education curricula.

Howard H. McFann, Ph.D., *Director*
Kan Yagi, Ph.D., *Research Scientist*

THE GENERAL ALUMNI ASSOCIATION

THE OBJECTIVES OF THIS ASSOCIATION are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors (dues or otherwise) to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.



COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES OF THIS CATALOGUE, under the alphabetically arranged names of the departments of instruction and special interdepartmental programs, are listed the courses of instruction offered by the University in the summer of 1968 and in the academic year 1968-69. The courses as here listed are subject to change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Classes are scheduled in the morning, afternoon, and evening. Evening and daytime sections of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the usual four years, a part-time student may complete the requirements and obtain a degree.

EXPLANATION OF COURSE NUMBERS

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the Dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered from 201 to 300 (in the Graduate School of Arts and Sciences, the School of Government and Business Administration, and the School of Public and International Affairs); courses numbered 201 to 400 (in the School of Education) are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified seniors; they are not open to other undergraduates.

Fourth-group courses.—Courses numbered 301 to 400 in the Graduate School of Arts and Sciences are limited to graduate students; but they are primarily for doctoral candidates. In the School of Education fourth-group courses, numbered 401 to 500, are limited to graduate students with Master's degrees from accredited institutions.

SEMESTER HOURS OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting*

Professor E.J.B. Lewis (Chairman)

Professorial Lecturers J.L. Buckler, C.L. Simpson, M.P. Pujol, A.L. Litke, Daniel Borth

Associate Professors F.C. Kurtz, Chei-Min Paik, A.J. Mastro

Associate Professorial Lecturers O.C. Disler, E.E. Pontius, Jr., R.B. Brown, J.F. Utley

Assistant Professors M.G. Gallagher, J.L. Thompson, Jr.

Assistant Professorial Lecturers O.B. Martinson, Jr., R.W. Perkins, E.M. Wysong, Jr., S.F. Platt

Lecturer T.E. Richards

Associate in Arts (two-year terminal curriculum in Accounting).—See page 74.

Bachelor of Business Administration with a major in Accounting.—See pages 120-23.

Master of Business Administration in the field of Accounting.—See pages 128-32.

FIRST GROUP

1-2 Introductory Accounting (3-3)

Staff

Preparation, uses, and limitations of financial reports. *First half:* basic financial reporting concepts and data accumulation and processing. *Second half:* introduction to managerial accounting—financial programming, cost determination, and analysis of financial statements. Accounting 1 is prerequisite to Accounting 2. (*First half and second half:* fall and spring—day and evening; summer 1968)

SECOND GROUP

101 Cost Accounting (3)

Mastro, Paik

Theory and purposes of industrial cost accounting, systems of cost control and determination, analysis and interpretation of cost data. Prerequisite: Accounting 1-2. (Fall—day; spring—evening; summer 1968)

111 Financial Statement Analysis (3)

Litke

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors. Prerequisite: 6 semester hours of accounting or permission of instructor. (Spring—day)

* Staff of Instruction for the academic year 1967-68.

***115 Survey of Accounting (3)**

Gallagher, Thompson

Preparation, uses, and limitations of financial information in the management process. Not open for credit to accounting majors. (Fall and spring—evening; summer 1968)

121-22 Intermediate Accounting (3-3)

Kurtz, Lewis

First half: accounting for assets and liabilities. Prerequisite: Accounting 1-2 or permission of instructor. *Second half:* partnership, corporation, consignment, and installment-sales accounting. Prerequisite: Accounting 121 or permission of instructor. (*First half:* fall—day; spring—evening. *Second half:* fall—evening; spring—day.)

132 Accounting Theory (3)

Mastro

Development of basic accounting principles and concepts, review of current thought as reflected in the pronouncements of leading professional and accounting research associations, major contributions to accounting literature. Prerequisite: 6 semester hours of accounting. (Spring—day; summer 1968)

141 Governmental Accounting (3)

Lewis, Pujol

Appropriation, encumbrance, and fund accounting for governmental and institutional entities. Prerequisite: Accounting 1-2 or permission of instructor. (Fall—evening)

144 Federal Accounting (3)

Lewis, Pujol

Accounting procedures in the Federal Government, with emphasis on agency-level accounts and accounting support for cost-based budgets. Prerequisite: Accounting 141 or permission of instructor. (Spring—evening)

161 Federal Income Taxation (3)

Gallagher

Federal income tax concepts applicable to individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2 or permission of instructor. (Fall—day; spring—evening)

162 Tax Research and Planning (3)

Gallagher

(Formerly *Federal Tax Practice*)

Survey of substantive federal tax provisions relating to corporations, partnerships, security transactions, estates, gifts, and pension and profit-sharing plans; emphasis on tax research and tax-planning objectives. (Fall—evening; spring—day)

171 Auditing (3)

Kurtz, Wysong

Duties and responsibilities of auditors: principles and procedures of making audits, techniques of verifying financial statement items, preparation of audit working papers and reports. Prerequisite: Accounting 121-22. (Fall—evening)

172 Audit Planning and Control (3)

Kurtz

(Formerly *Auditing Practice*)

Standards of audit reporting and other current auditing topics, including application of statistical sampling techniques to auditing, auditing elec-

*Special section of this course offered in Navy Graduate Financial Management Program.

tronic systems, and management advisory services. Prerequisite: Accounting 171 or permission of instructor. (Spring—evening)

181 Accounting Systems (3) Lewis, Brown

Theory and procedure of designing and installing systems for collecting, recording, analyzing, and presenting accounting and other business data. Prerequisite: Accounting 101, 121-22, and 171, or permission of instructor. (Fall—evening)

191 Advanced Accounting (3) Thompson

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121-22. (Fall—evening)

193 Business Budgeting (3) Lewis, Perkins

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in management of commercial and industrial organizations. Prerequisite: Accounting 1-2. (Fall—day; spring—evening; summer 1968)

196 Management Decisions and Accounting (3) Mastro

Analysis of information required in capital budgeting, inventory management, and other decisions; cash-flow and probability data; advanced cost accounting systems. Prerequisite: Accounting 101. (Spring—evening)

THIRD GROUP

215 Survey of Managerial Accounting (3) Gallagher, Thompson

Nature, preparation, analysis, and interpretation of accounting reports; cost accounting, business budgeting, and internal accounting controls and their use in the management process. Prerequisite: Accounting 1-2 or 115 or permission of instructor. (Fall and spring—evening; summer 1968)

231 Contemporary Accounting Theory (3) Mastro

Advanced accounting principles and concepts and recent theories concerned with the valuation and amortization of assets and determination of income. Prerequisite: 6 semester hours of accounting and permission of instructor. (Not offered 1968-69)

241 Accounting and Related Disciplines (3) Paik

Relationship between accounting and such related disciplines as economics, statistical theory, and operations research; emphasis on what the accountant has to offer to these allied fields and on new ideas and requirements these fields may offer or impose upon accounting. Prerequisite: 6 semester hours of accounting. (Fall—evening)

245 Decision Systems and Accounting (3) Paik

Limited to students in the Navy Graduate Financial Management Program. Problems encountered in managing financial and related information systems in complex organizations; the relationships between accounting in its broadest sense and management control and decision systems. (Fall—as arranged)

246 Governmental Accounting and Budgeting Problems (3) Lewis

Current problems in federal financial planning, programming, budgeting, accounting, and auditing. Prerequisite: Accounting 144 or permission of instructor. (Not offered 1968-69)

- 275 Internal Control and Auditing (3)** Kurtz, Wysong
Internal accounting controls and review and appraisal of accounting systems, procedures, and managerial policies with respect to their effectiveness and profitableness. Prerequisite: Accounting 171 or permission of instructor. (Not offered 1968-69)
- 276 Management Planning and Control (3)** Paik
Theories and techniques of cost accounting and budgetary planning and control, with emphasis on: the relation of planning and control systems to corporate and departmental objectives, control of decentralized operations and discretionary costs, long-range planning and control. Prerequisite: Accounting 101 and Business Administration 102 or Business and Public Administration 201, or permission of instructor. (Spring—evening; summer 1968)
- 292 Professional Accounting Review (3)** Lewis
Review and coordination of principles and techniques developed in the accounting curriculum, in preparation for general practice in the field of accountancy and for professional accounting examinations. Prerequisite: Accounting 101, 141, 161, 171, and 191; or permission of instructor. (Spring—evening)
- 295 Seminar in Accounting (3)** Staff
Selected accounting research topics and problems; individual oral and written reports. Admission by permission of instructor; may be repeated once for credit. (Fall—evening)
- 297 Accounting Reading and Research (3)** Staff
May be repeated once for credit. (Fall and spring—as arranged; summer 1968)
- 299 Thesis Seminar (3)** Staff
(Fall and spring—as arranged; summer 1968)
- 300 Thesis Research (3)** Staff
(Fall and spring—as arranged; summer 1968)

American Thought and Civilization

Bachelor of Arts with a major in American Thought and Civilization (Field-of-Study).—See pages 247-48. An interdepartmental degree program administered by the Department of English under Columbian College of Arts and Sciences.

Master of Arts in the field of American Literary and Cultural History.—See page 248. An interdepartmental degree program administered by the Department of English under the Graduate School of Arts and Sciences.

Doctor of Philosophy fields of study in American Thought and Culture: Library Research and Collections (jointly directed by the University and members of the staff of the Library of Congress); Material Culture of the United States (jointly directed by the University and members of the staff of the Museum of History and Technology, Smithsonian Institution); and Social Themes in Literature.—This program combines work in Literature and History and is administered by the Department of English under the Graduate School of Arts and Sciences. See pages 83-85, 87-88, for requirements for the degree.

SECOND GROUP

101 American Civilization (3)

Staff

Lecture (1¼ hours), discussion (1¼ hours). Contemporary themes in American culture presented against the background of the humanities and social sciences. Each lecture presented by an authority on a particular subject; readings and discussion sections provide continuity. Center of attention varies from semester to semester. Prerequisite: successful completion of 85 semester-hours credit. Open to undergraduate and graduate students, but available for graduate credit only with the approval of the department and college concerned. Not available for graduate credit in the Graduate School of Arts and Sciences. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. (Fall—late afternoon; spring—evening)

*196 Summer Institute in American Studies (6 or 7)
(Summer 1968)

Mondale and Staff

COURSES OFFERED IN AFFILIATION WITH THE
LIBRARY OF CONGRESS

The following courses are offered at the Library of Congress by members of its staff:

THIRD GROUP

255 Research Orientation Seminar: Americana in the Library
of Congress (6)

Introduction to research opportunities and fields of study which contribute to the profession of librarianship. Development, bibliographic control, and research use of the Library of Congress' special collections; brief comparisons with major collections elsewhere. (Fall—day)

FOURTH GROUP

355-56 Seminar: Advanced Library Research (3-3)

Introduction to practical problems of research in librarianship and control of collections. Supervised study in selected subject fields; emphasis on collections in the Library of Congress and concentrated work in a special collection. Prerequisite: American Thought and Civilization 255. (Academic year—as arranged)

389 Advanced Reading and Research (arr.)

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged)

390 Dissertation Research (arr.)

For Doctor of Philosophy candidates preparing dissertations based upon or significantly related to collections of the Library of Congress. Supervised by specialists at the Library. Prerequisite: American Thought and Civilization 355-56. (Fall and spring—as arranged)

* Offered in Summer Special Program in American Studies.

COURSES OFFERED IN AFFILIATION WITH THE SMITHSONIAN INSTITUTION

The Graduate School of Arts and Sciences is affiliated with the Smithsonian Institution's Program for Graduate Students in the History of American Civilization. The following courses are offered at the Museum of History and Technology, by members of its staff:

THIRD GROUP

250 Orientation Course: Material Aspects of American Civilization (3)

Familiarization with the historical collections of the Smithsonian Institution and introduction to opportunities for research and publication based on historical objects. Required of all students in the doctoral program affiliated with the Smithsonian Institution; open to undergraduate students with permission of instructor. (Fall and spring—day)

FOURTH GROUP

351-52 Readings in Selected Aspects of American Civilization (3-3)

Supervised study in selected subject fields included in the collections of the Museum of History and Technology. Prerequisite: American Thought and Civilization 250. (Academic year—day)

398 Advanced Reading and Research (arr.)

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged)

399 Dissertation Research (arr.)

For Doctor of Philosophy candidates preparing dissertations significantly related to the material aspects of American civilization. Students work under curatorial supervision in the reference collections at the Museum. Prerequisite: American Thought and Civilization 351-52. May be repeated for credit. (Fall and spring—as arranged)

Anatomy*

Professors I.R. Telford (*Chairman*), Paul Calabrisi, C.M. Goss (*Visiting*), Patrick Fitzgerald (*Visiting*)

Professorial Lecturer J.L. Angel

Associate Professors F.D. Allan, T.N. Johnson, J.B. Christensen, L.E. Church (*Research*)

Associate Professorial Lecturers J.A. Di Paolo, Max Levitan, M.S. Legator

Assistant Professors H.E. Kaiser, Joan Blanchette

Assistant Clinical Professor R.N. Brown

Assistant Professorial Lecturers R.G. Clark, D.K. MacCallum

Master of Science in the field of Anatomy.—Prerequisite: a Bachelor's degree from this University, or equivalent, with a major in a biological science or Chemistry. The undergraduate program must include the following courses, or equivalent: Bio-

* Staff of Instruction for the academic year 1967-68.

logical Sciences 1-2; Chemistry 11-12, 51-52, 53-54; Physics 1, 2. Biochemistry 221-22 is recommended as an elective.

Required: the general requirements, pages 83-87, including Anatomy 202, 203, 204, 205, 221-22, 295, 299-300, and graduate courses in biochemistry, physiology, or related fields selected with the approval of the Department. It is not always possible to arrange courses and research so that the student can be assured of completing all the required work in one academic year.

Doctor of Philosophy fields of study in Anatomy: Electron Microscopy, Embryology, Gross Anatomy, Histology, Human Genetics, Neuroanatomy, and Physical Anthropology.—See pages 83-85, 87-88, for requirements for the degree.

202 Gross Anatomy (6) Calabrisi and Staff
Regional dissections of adult cadaver supplemented with lectures and X-rays. Laboratory fee for nonmedical students, \$30. (Fall—day)

203 Human Embryology (1) Allan
Origin and development of human body; emphasis on value of embryology in interpreting anatomical anomalies. (Fall—day)

204 Neuroanatomy (2) Johnson and Staff
Gross and microscopic anatomy of central nervous system and special senses. Laboratory fee for nonmedical students, \$13. (Fall—day)

205 Microscopic Anatomy (3) Telford and Staff
Microscopic structure of cells, tissues, and organs of the human body. Laboratory fee for nonmedical students, \$13. (Fall—day)

221-22 Seminar (1-1) Telford and Staff
Research reports and discussions of special topics by staff and graduate students. (Academic year—day)

249 Introduction to Anatomical Research (1) Telford and Staff
Major research techniques as applied to biological materials in the various anatomical disciplines. (Fall—day)

252 Physical Anthropology (1) Angel
Variations in man and factors affecting him, human evolution and racial differences, anatomy and culture of ancient man. (Spring—day)

254 Fetal Anatomy (2) Allan
Dissection of early and late human fetus. Comparison of fetal and adult structures. 20 students. Laboratory fee for nonmedical students, \$10. (Spring—day)

255 Basic Genetics (1) Di Paolo
Introductory. Basic concepts in genetics: Mendelian inheritance, linkage, gene interaction, chromosome mapping, mutation, dominant and recessive genes. (Spring—day)

256 Human Genetics (1) C. B. Jacobson
General principles of genetics, new cytogenetics technics, aneuploidy in man and its significance, biochemical aspects of heredity, genetic counseling. (Spring—day)

260 Electron Microscopy in Cellular Biology—Lecture (1) Blanchette
Anatomy 260 may be taken without 261. (Spring—as arranged)

- 261 **Electron Microscopy in Cellular Biology—Laboratory** (2) Blanchette
Accompanies Anatomy 260. Prerequisite or concurrent registration:
Anatomy 260. (Spring—as arranged)
- 262 **Gross Anatomy of Upper and Lower Extremities** (2) Calabrisi
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned
reading. 12 students. Laboratory fee for nonmedical students, \$10.
(Spring—day)
- 264 **Gross Anatomy of Head and Neck** (2) Christensen
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned
reading. 12 students. Laboratory fee for nonmedical students, \$10.
(Spring—day)
- 266 **Gross Anatomy of Thorax and Abdomen** (2) Christensen
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned
reading. 12 students. Laboratory fee for nonmedical students, \$10.
(Spring—day)
- 268 **Gross Anatomy of Pelvis, Perineum, and Lower** Calabrisi
Extremity (2)
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned
reading. 12 students. Laboratory fee for nonmedical students, \$10.
(Spring—day)
- 270 **Dissection of the Human Brain** (1) Johnson
Dissection of major pathways and nuclei of the brain with consideration of
ventricular system; conferences and assigned reading. 15 students. Lab-
oratory fee for nonmedical students, \$10. (Spring—day)
- 272 **Autonomic Nervous System** (1) Allan
Development, microscopic and gross anatomy, function of central and
peripheral components of autonomic nervous system. (Spring—day)
- 274 **Tissues of the Body** (1) Telford, Blanchette
Basic concepts in anatomy, with emphasis on primary tissues of the body—
their histogenesis, growth, functions, regenerative capacities, aging, death.
(Spring—day)
- 278 **History of Anatomy and Surgery** (1) Goss
Lectures and discussions related particularly to the lives and times of out-
standing contributors to the advancement of the science of anatomy and
surgery. (Spring—day)
- 295 **Research** (arr.) Staff
Content differs each time course is offered; may be repeated once for
credit. Fee to be arranged. (Fall and spring—as arranged)
- 299–300 **Thesis Research** (3–3) Staff
(Academic year—as arranged)
- 398 **Advanced Reading and Research** (arr.) Staff
Limited to students preparing for the Doctor of Philosophy general exam-
ination. May be repeated for credit. (Fall and spring—as arranged;
summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Anthropology**Professor D.M. Taylor (Research)**Adjunct Professor P.F. Gallagher**Professorial Lecturer J.L. Angel**Associate Professor Helmuth Fuchs (Research)**Associate Professorial Lecturer W.H. Crocker**Assistant Professors Ruth Krulfeld, R.K. Lewis (Acting Chairman), Ruth McKay, Joan Rubin, R.L. Humphrey, Jr.*

Bachelor of Arts with a major in Anthropology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Anthropology 1–2.

Required: in addition to the general requirements stated on pages 74–78, twenty-four semester hours in Anthropology, which must include 192, and second-group Anthropology courses in each of the following categories: Aspects of Culture (courses numbered in the 150's), Linguistics (courses numbered in the 160's), Ethnology (courses numbered in the 170's), and Physical Anthropology and Archeology (courses numbered in the 180's). Students in the senior year are encouraged to elect courses from the following: Biological Sciences 108; English 125; Geology 154; Mathematics 101; Philosophy 196; Psychology 115, 121; and Statistics 104. Students are normally provided the opportunity to participate in field research conducted each summer by anthropological field schools in states of the American West. Opportunities for such research participation in South America are also periodically provided for exceptionally able students selected by the staff member conducting the field research.

Master of Arts in the field of Anthropology.—Prerequisite: the degree of Bachelor of Arts with a major in Anthropology from this University, or equivalent.

Required: the general requirements, pages 83–87. All courses must be approved in advance by the adviser. The Master's Comprehensive Examination must be taken before registration for the second half of the thesis work.

Master of Arts in the field of Linguistics.—See pages 287–89, and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Departmental prerequisite: Anthropology 1–2 is prerequisite to all second-group courses in Anthropology.

FIRST GROUP**1–2 Introductory Anthropology (3–3)**

Staff

First half: survey of man's origin, physical evolution, and culture history.
Second half: survey of the world's cultures, illustrating the principles of cultural behavior. (Academic year—day and evening; summer 1968)

* Staff of Instruction for the academic year 1967–68.

SECOND GROUP

- 150 Comparative Value Systems (3)** Krulfeld
Examination of world views, conceptual systems, and value hierarchies of representative cultures throughout the world. (1969-70 and alternate years)
- 151 Introduction to Primitive Economics (3)** Krulfeld
Introduction to the cross-cultural study of the allocation of goods and services, including an examination of primitive subsistence patterns. (1968-69 and alternate years: fall-day)
- 153 Psychological Anthropology (3)** McKay
Relevance of psychoanalytic theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. (Fall-day; summer 1968)
- 154 Mythology and Folklore (3)** Staff
Unwritten literature as an expression of imaginative and creative thought; the place of mythology and folklore in social organization, in enculturation, and in social control. (Spring-day)
- 155 Primitive Religion (3)** Staff
Conceptions of the supernatural in nonliterate societies. Examination of religious beliefs and practices. (Fall-day)
- 156 Witchcraft and Sorcery (3)** Gallagher
The analysis of the functions of witchcraft and sorcery among primitives, with particular attention to their place in social control and organization. (Spring-day)
- 157 Primitive Social Organization (3)** Staff
The analysis of the social organization of primitive peoples; kinship, economic, and political systems. (Fall-day)
- 158 Art and Culture (3)** Krulfeld
Study of the art of tribal society, including the role of art in culture, influences upon the artist, and beliefs and practices associated with art production. (Spring-day)
- 159 Ethnoscience (3)**
Comparative study of branches of knowledge, such as astronomy, botany, mathematics, psychology, technology, and zoology, as these are empirically derived and systematically arranged in selected preindustrial societies. (1969-70 and alternate years)
- 161 Language and Culture (3)** Staff
Structure and semantics of systems of human communication; linguistic change; influence of language on world view. (Fall-day)
- 162 Linguistics in Anthropology (3)** Staff
Anthropological field use of structural analysis, sounds of language-phonetics and phonemics, techniques of linguistic recording and analysis, field work. (Spring—as arranged)

163 Language Problems in Developing Nations (3)

Study of language engineering required in nation building and of linguistic maintenance or shift in complex societies. (1969-70 and alternate years)

170 Cultures of the Caribbean (3)

Lewis

Study of the culture history and ways of life of Indian groups of the area during the ethnographic present. (1969-70 and alternate years)

171 Native Peoples of North America (3)

Humphrey

Survey of Indian groups representative of each of the culture areas of the continent. (1968-69 and alternate years: fall-day)

172 Native Peoples of South America (3)

Crocker

Survey of Indian groups representative of each of the culture areas of the continent. (1969-70 and alternate years)

173 Cultures of the Pacific (3)

Lewis

Study of the culture history and ways of the life of the native peoples of Melanesia, Micronesia, and Polynesia. (1968-69 and alternate years: fall-day)

174 Far Eastern Communities (3)

Krulfeld

Community study approach in anthropology as applied to selected villages in such Asian areas as China, Japan, and Malaysia. (Spring-day)

175 Cultures of Southeast Asia (3)

Krulfeld

Survey of representative Southeast Asian cultures from primitive groups to high civilizations. (Fall-day)

176 Cultures of the Circumpolar Region (3)

Lewis

Survey of the social and economic adaptations to an extreme climate made by peoples of the northern sub-arctic and arctic regions. (1969-70 and alternate years)

177 Cultures of the Near East (3)

Lewis

Study of the geographic environment, language, religion, and social structure of settled and nomadic peoples of the Near East; emphasis on the Arab world. (1968-69 and alternate years: spring-day)

178 Cultures of South and East Africa (3)

Lewis

Comparative examination of the history, cultural development, and contemporary problems of cultures of southern and eastern Negro Africa. (1969-70 and alternate years)

179 Cultures of West and Central Africa (3)

Lewis

Comparative examination of the history, cultural development, and contemporary problems of cultures of western and central Negro Africa. (1969-70 and alternate years)

182 New World Archeology (3)

Humphrey

Survey of pre-Columbian culture history, from man's entry into the Americas during the Pleistocene Ice Age until the time of the first European contacts. (Fall-day)

- 183 Old World Archeology (3)** Humphrey
Survey of the culture of the history of man exclusive of the Americas, from earliest hominid cultures to advanced civilizations and their secondary centers. (1968-69 and alternate years: spring-day)
- 185 Latin American Archeology (3)** Humphrey
The Paleo-Indian in Meso and South America; the Archaic; the discovery of agriculture; the archeology of Mexico, Central America, and the Caribbean; the question of transpacific contacts. (1969-70 and alternate years)
- 186 Physical Anthropology (3)** Angel
Study of human variation past and present, seen as a product of physical and cultural evolution. (Spring-evening)
- 192 Anthropological Theory (3)** Krulfeld
Analysis of the theoretical postulates and assumptions underlying the development of modern cultural anthropology. (Fall-day)
- 193 Anthropological Methods (3)** Crocker
Approaches to library and field research. Conceptual bases and bias in the delineation of problems; in the selection, analysis, and organization of data; and in the preparation of the final report. (Spring-day)

THIRD GROUP

- 261 Field Methods in Sociolinguistics (3)**
Principles of interviewing and recording various linguistic dialects; techniques of observation of cultural variables which influence linguistic choice. (Not offered 1968-69)
- 262 Applied Anthropology (3)** McKay
Use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1968-69 and alternate years: spring-day)
- 263 Culture Contact and Change (3)** Humphrey
Western impact on non-Western cultures. Workings and processes of social change as variant cultures and ethical systems interact. (1969-70 and alternate years)
- 264 Museum Techniques (3)** Humphrey
Principles of collection, classification, identification, and interpretation of specimens; presentation to the public of the cultural significance of prepared specimens; research and instructional use of the museum. (1968-69 and alternate years: spring-day)
- 265 Method and Theory in Archeology (3)** Humphrey
Analysis of field techniques, dating methods, and theoretical approaches in reconstructing the cultures of the past, utilizing the newest archeological techniques. (Fall-day)
- 266 Technology (3)** Lewis
Cross-cultural examination of the form, function, meaning, and use of material culture and the behavior patterns involved in its production. (1968-69 and alternate years: spring-day)

- 267 Primitive Economics (3)** **Krulfeld**
Comparative study of preindustrial systems of production, distribution, and consumption. (1969-70 and alternate years)
- 268 Peasant Society (3)** **Krulfeld**
Cross-cultural analysis of peasant societies, including an examination of their manner of functioning within their larger social, economic, and cultural context. (1969-70 and alternate years)
- 273 Culture of Poverty (3)**
Cross-cultural consideration of basic assumptions about the life of the poor within pluralistic societies with the aim of gaining theoretical insights into the nature of culture itself. (Not offered 1968-69)
- 295 Research (arr.)** **Staff**
May be repeated for credit. (Fall and spring—as arranged)
- 299-300 Thesis Research (3-3)** **Staff**
(Academic year—as arranged; summer 1968)

Art*

Professors D.C. Kline, W.A. MacDonald, L.P. Leite (*Chairman*)

Professorial Lecturer Grace Evans

Associate Professors Roland Fleischer, F.S. Grubar, D.H. Teller (*Curator of Art*)

Instructors H.I. Gates, F.O. Griffith, Lilien Hamilton

Lecturers Patsy Smith, R.G. Stewart, Jane Kofler, Sedgely Bidwell

Studio Lecturers on the Staff of the Corcoran School of Art E.M. Archer, Jack Perlmutter, Alexander Russo, Joseph Taney, Teruo Hara, James Twitty, Berthold Schmutzhart, Pietro Lazzari, A.B. Stevenson, William Taylor, William Woodward, Thomas Downing, Robert Foster, Samuel Holvey, Edwin McGowin, Arthur Terry, Frank Wright, Harold Baskin, W.S. Dutterer, E.W. Frederick, J.F. Giampaoli, W.G. Johnson, Jack Lefkowitz, Yvonne Libonati, Roy Slade, R.M. Stackhouse, Krystyna Swiecicki

Bachelor of Arts with a major in Art History and Theory (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, or equivalent, including Art 31-32.

Required: the general requirements, pages 74-78; twenty-one semester hours, as follows: Art 101 or 102; 104 or 105; 109 or 110; 112; 113 or 114; 117 or 118; 137. In addition, nine semester hours selected from second-group courses, or from third-group courses open to undergraduates with the approval of the instructor. Philosophy 162 is recommended as a senior-year elective. Students intending to major in this field are urged to acquire a reading knowledge of a foreign language, preferably French or German at the earliest possible convenience.

Bachelor of Arts with a major in Fine Arts (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, or equivalent, including Art 21-22 and 31-32.

Required: in addition to the general requirements, pages 74-78, twenty-seven semester hours in Fine Arts; Philosophy 162 or equivalent; six hours of Art History selected

* Staff of Instruction for the academic year 1967-68.

from second-group courses or from third-group courses open to undergraduates with the approval of the instructor. A maximum of twelve of the required twenty-seven hours in Fine Arts may be taken in any one of the following fields: painting, design, sculpture, graphics, and ceramics; the remainder are to be selected from three of these fields.

*Bachelor of Arts with a major in Classical Archeology and Greek (Departmental).—*This interdepartmental major may be arranged in conjunction with the Department of Classics. Prerequisite: the Arts and Letters curriculum, page 69, Greek 13-14, and History 39-40.

Required: in addition to the requirements, pages 74-78, twelve semester hours of second-group courses in Greek; Anthropology 183; Art 101, 102, 103, 111; History 109; Philosophy 111. A reading knowledge of French or German, preferably both, is strongly recommended.

*Master of Arts in the field of Art History and Criticism with concentrations in Classical Art and Archeology, American Art, Renaissance and Baroque Art, Contemporary Art, and Medieval Art.—*Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or equivalent.

Required: the general requirements, pages 83-87. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A general written Master's Comprehensive Examination on the problems in the field of Art History and Criticism; a written thesis embodying the results of research on some specific topic in the history and criticism of art.

*Master of Arts in the field of Museology.—*Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or equivalent.

Required: the general requirements, pages 83-87. Fifteen semester hours in museum courses: Art 146, 271-72; nine semester hours divided between courses in art history and courses in related fields outside the Department of Art; a general written Master's Comprehensive Examination in the field of museology; a written thesis embodying the results of research on some specific aspect of museums or museum work.

*Master of Fine Arts in the field of Painting, Sculpture, Ceramics, or Graphics.—*Prerequisite: the degree of Bachelor of Arts with a major in Fine Arts in the field of Painting, Sculpture, Ceramics, or Graphics at this University, or equivalent.

Required: the general requirements, pages 83-87. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A creative thesis in painting, sculpture, ceramics, or graphics; a paper discussing some technical phase of the problem illustrated by the thesis.

*Bachelor of Arts in Education with a teaching field in Art.—*Prerequisite: the Education curriculum, pages 71-72.

Required: the Art option and professional courses listed on pages 96-97, 105.

ART HISTORY AND THEORY

FIRST GROUP

1 Art Appreciation (3)

Hamilton

Language and function of art in its various media; development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. (Fall and spring—day; summer 1968)

31-32 Survey of Western Art (3-3)

Hamilton

Survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. (Academic year—day and evening; summer 1968)

71-72 Introduction to the Arts in America (3-3)

Kline, Grubar

Painting, sculpture, and architecture of America, with selected references to crafts and popular arts. First half: from Colonial beginnings to the

Republican Age. *Second half:* from early 19th century to the present.
(Academic year—day and evening; summer 1968)

SECOND GROUP

- | | |
|---|--------------------------------------|
| 101 Greek and Roman Architecture (3)
(Fall—day) | MacDonald |
| 102 Greek and Roman Sculpture (3)
(Spring—day) | MacDonald |
| 103 Classical Iconography (3)
Origin and development of myths in classical art.
1968) | MacDonald
(Fall—day; summer |
| 104 Renaissance Art in Italy I (3)
Early developments from the 13th to the 15th century. | Evans
(Fall—day) |
| 105 Renaissance Art in Italy II (3)
High Renaissance and Mannerism. | Leite
(Fall—day) |
| 106 Renaissance Art in the North I (3)
Fifteenth century painting in the Netherlands, Germany, France, Spain, and Portugal. | Fleischer
(Fall—day; summer 1968) |
| 107 Renaissance Art in the North II (3)
Sixteenth century painting in the Netherlands, Germany, France, Spain, and Portugal. | Fleischer
(Spring—day) |
| 108 18th Century Art in Europe (3)
Development of painting, sculpture, and architecture. | Fleischer
(Fall—day; summer 1968) |
| 109 19th Century Art in Europe (3)
Painting and sculpture from Academism to Symbolism. | Leite
(Spring—day) |
| 110 Contemporary Art (3)
Painting and sculpture in 20th century Europe. | Leite
(Spring—day) |
| 111 Classical Archeology (3)
Archeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. | MacDonald
(Not offered 1968-69) |
| 112 Art of Egypt and the Ancient Orient (3)
Study of the art of Mesopotamia, Anatolia, Egypt, and Persia.
day) | MacDonald
(Spring— |
| 113 Baroque Art in Italy (3)
Development of painting, sculpture, and architecture in 16th and 17th century Italy. | Leite
(Summer 1968) |
| 114 Baroque Art in the North (3)
Development in painting, sculpture, and architecture in the 16th and 17th centuries in Holland, Flanders, Spain, France, Germany, and England. | Fleischer
(Spring—day) |
| 115 Christian Iconography (3)
Origins and development of Christian symbols and themes from early Christian to modern times. | Leite
(Fall—evening) |

- 117 Medieval Art I (3)** Evans
Architecture, sculpture, and painting of the early Christian and Byzantine periods. (Fall—day)
- 118 Medieval Art II (3)** Evans
Architecture, sculpture, and painting of the Romanesque and Gothic periods. (Spring—day)
- 119 Pre-Romanesque Art in the North (3)** Evans
Art of the Carolingian and Merovingian periods. (Spring—day)
- 120 Art of China and Japan (3)** Kline
Architecture, painting, and sculpture of China, Korea, and Japan. (Fall—day)
- 141 Interior Decoration (3)** Kline
Principles of decoration dealing with furniture designs and ensemble layout, draperies, color, accessories, and lighting. (Summer 1968)
- 142 House Planning (3)** Kline
Contemporary house for family living, including site problems, the case plan, materials of building, and climate conditioning. (Not offered 1968-69)
- 145 Folk Arts in America (3)** Kline
Ceramics, woodcarving, ironwork, decorative painting, weaving, and other crafts. (Fall—day)
- 146 Principles of Museum Work (3)**
Introduction to the history and development of museums; problems of museum administration, connoisseurship, cataloguing, installation, conservation, and educational service. Prerequisite to graduate study in museology. Field trips to galleries and museums arranged. (Fall and spring—evening)
- 148 19th Century American Painting (3)** Grubar
(Fall—day)
- 149 19th Century American Sculpture (3)** Grubar
(Spring—day; summer 1968)

THIRD GROUP

- *203 Primitive Art (3)** Kline
Arts of prehistoric and primitive man in Europe, the pre-Columbian Americas, Oceania, and Africa. (Spring—day)
- 207 Modern Architecture (3)** Kline
Development of modern architecture and building technology in Europe and America from the late 19th century to the present. (Spring—day)
- 216 Medieval Painting (3)** Evans
Painting and the decorative arts. (Not offered 1968-69)

* May be taken for undergraduate credit with the approval of the instructor.

- 220 Seminar: Baroque Art of the 17th Century (3) Fleischer
(Spring—day)
- 221 Seminar: Northern Renaissance Art (3) Fleischer
(Fall—day)
- 243 Seminar: American Art (3) Grubar
Specific area announced in *Schedule of Classes*. (Fall and spring—day)
- 244 Seminar: 19th Century Art (3) Leite
Specific area announced in *Schedule of Classes*. Reading knowledge of French desirable. (Not offered 1968–69)
- 245 Seminar: 20th Century Art (3) Grubar, Leite
Specific area announced in *Schedule of Classes*. (Not offered 1968–69)
- 246 Seminar: Classical Art (3) MacDonald
Specific area announced in *Schedule of Classes*. (Fall—day; summer 1968)
- 247 Seminar: Medieval Art (3) Evans
(Spring—day)
- 261 Art Theory and Criticism (3) Staff
History of theory and criticism; area of concentration selected from Classical, Medieval, Renaissance, and Modern fields. (Fall and spring—day)
- 271–72 Museum Techniques (6–6) Staff
Intern training in museum work. Work of each semester concentrated into a six-week period, Monday through Friday, 9 am–5 pm. Prerequisite: Art 146. (Academic year—as arranged; summer 1968)
- 289–90 Thesis Research (3–3) Staff
(Academic year—as arranged; summer 1968)

FINE ARTS

Fine Arts courses taught in University studios carry no material or laboratory fees; students must purchase their own materials. Laboratory and material fees for courses taught at the Corcoran School of Art are stated in the course description and are payable at the School.

Courses designated CSA are taught at the Corcoran School of Art.

Departmental Prerequisite: Art 21–22 or permission of Department Chairman is prerequisite to all other studio courses in Art.

FIRST GROUP

*21–22 Basic Design (3–3)

Fundamental studies of principles and elements of design. *First half*: study of two-dimensional design. *Second half*: three-dimensional studies. (Academic year—day and evening; summer 1968)

* Required of all Fine Arts majors.

41-42 Drawing I (3-3) CSAStackhouse, Lazzari, McGowin,
Wright, Schmutzhart

Introductory course including traditional and contemporary techniques, mechanical and visual perspective. (Academic year—day and evening; summer 1968)

51-52 Ceramics I (3-3) CSA

Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Laboratory fee, \$25 a semester. (Academic year—day and evening; summer 1968)

57-58 Printmaking I (3-3)

Griffith

(Formerly *Introduction to Graphic Techniques*)

Exploration of the methods of intaglio, relief, block printing, lithography, and other composite processes. (Academic year—day and evening)

61-62 Watercolor (3-3) CSA

Stevenson

Study of watercolor techniques and styles, including sketching as a basis for technique. (Academic year—day; summer 1968—Art 61)

65-66 Painting I (3-3) CSA

Woodward

Basic color composition and fundamental painting techniques. (Academic year—day and evening; summer 1968)

81-82 Sculpture I (3-3) CSA

Lazzari, Taylor

Armature building, clay and plaster modeling, casting techniques. (Academic year—day and evening; summer 1968)

SECOND GROUP

Second-group Art courses may be repeated for credit with the approval of the Department.

***121-22 Design: Structured (3 or 6-3 or 6)**

Gates

Structured course that extends the student's design experience through a series of problems involved with both two- and three-dimensional media. Emphasis on problem solving through experimentation with materials and tools. (Academic year—day)

123-24 Design: Individual Problems (3-3)

Staff

Emphasis on the individual student and the problems and materials that specifically interest him in any area of design. Prerequisite: Art 121-22. (Academic year—as arranged; summer 1968—Art 124)

†125-26 Painting II (3 or 6-3 or 6) CSA

Twitty, Downing

Development of basic concepts carried into personal statement. Study of stylistic approaches from realistic to abstract. (Academic year—day and evening; summer 1968—Art 125-26 (3-3))

†127-28 Painting III (3 or 6-3 or 6) CSA

Russo, Downing

Exploratory efforts in the development of style, using advanced methods and materials. (Academic year—day and evening; summer 1968—Art 127-28 (3-3))

* Fine Arts majors with concentrations in design may elect 6 semester hours of credit.

† Fine Arts majors and Master of Fine Arts candidates should elect 6 semester hours of credit.

- *131-32 Ceramics II (3 or 6-3 or 6) CSA** Hara
 Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming. Laboratory fee, \$30 a semester. (Academic year—day and evening; summer 1968—Art 131-32 (3-3))
- 137 Workshop in Materials, Methods, and Techniques (3) CSA** Russo, Woodward
 Drawing in charcoal, crayon, and pen; painting and preparation of grounds in tempora, encaustic, fresco buono, oil, watercolor, polymer, and mixed techniques; graphic techniques in woodcut, engraving, etching; modeling in clay and carving in wood and stone; mosaic. Laboratory fee, \$10. (Fall and spring—day; summer 1968)
- 139-40 Design Workshop (3-3)** Gates
 Exploration of design possibilities in wood, metal, textile, plastics, and other materials. (No offered 1968-69)
- 143-44 Serigraphy (3-3)** Teller
 Advanced problems in serigraphy; emphasis on its aesthetic possibilities. Prerequisite: Art 57-58. (Academic year—day; summer 1968)
- *151-52 Ceramics III (3 or 6-3 or 6) CSA** Hara
 Advanced glaze calculation, experimentation in reduction firing, individual problems in formation techniques, and problems in series production for the studio artist. Advanced decorating and finishing techniques. Laboratory fee, \$30 a semester. (Academic year—day and evening)
- *153-54 Printmaking II (3 or 6-3 or 6)** Griffith
(Formerly Etching)
 Advanced relief, intaglio, lithographic, and other composite processes. Prerequisite: Art 57-58 or equivalent. (Academic year—day; summer 1968—Art 153-54 (3-3))
- *157-58 Printmaking III (3 or 6-3 or 6)** Griffith
(Formerly Relief Printing)
 Exploration of combined techniques and mixed media. Prerequisite: Art 153-54 or equivalent. (Academic year—day; summer 1968—Art 157-58 (3-3))
- 159-60 Drawing II (3-3) CSA** Russo, Giampaoli
 Special problems in anatomy of the life model in action and repose. (Academic year—day and evening; summer 1968)
- 163-64 Welding (3-3)** Gates
 Special problems in welded sculpture. (First half: summer 1968. Second half: not offered 1968-69)
- *165-66 Painting, Drawing, Composition (3 or 6-3 or 6) CSA** Archer
 Study of nature and the principles of the Renaissance and 19th century masters. Primarily for nonmajors. (Not offered 1968-69)
- 171-72 Calligraphy and Lettering (3-3) CSA** Foster
 Design and execution of finished lettering for reproduction, type, and layouts. (Academic year—day; summer 1968)

* Fine Arts majors and Master of Fine Arts candidates should elect 6 semester hours of credit.

- 173-74 Advanced Calligraphy and Lettering (3-3) CSA** Foster
Study of the design and appropriate use of present day letter forms followed by a consideration of current type faces and their use in contemporary typography. (Academic year—day)
- *175-76 Design Projects (3 or 6-3 or 6) CSA** Holvey and Staff
Advanced problems in various areas. Individual creative projects. (First half: not offered 1968-69. Second half: spring—day and evening.)
- 177-78 Rendering (3-3) CSA** Holvey
Methods and techniques of visual representation as used in the professional design fields, with a survey of modern illustrative styles. (Academic year—day)
- *179-80 Sculpture II (3 or 6-3 or 6) CSA** Lazzari, Taylor
Three-dimensional compositions, bas-relief techniques. Basic principles of wood and stone carving. (Academic year—day and evening; summer 1968—Art 179-80 (3-3))
- *181-82 New Media (3-3) CSA** McGowin
New media: plastic, lights, epoxy, rubber, styrafoam, and kinetic machinery. (Academic year—day)
- *183-84 Advertising Design (3 or 6-3 or 6) CSA** Taney and Staff
Study of layout, letter form, illustration, photography, and type. Prerequisite: Art 175-76. (Academic year—day and evening)
- *185-86 Advanced Advertising Design (3 or 6-3 or 6) CSA** Taney and Staff
Advanced problems with emphasis on page and small space advertisement; brochures and posters. Prerequisite: Art 183-84. (Academic year—day and evening)
- 187-88 Advertising Design: Photography (3-3) CSA** Libonati
(Academic year—day)
- *189-90 Sculpture III (3 or 6-3 or 6) CSA** Lazzari, Taylor
Advanced problems in sculpture as related to architecture. Experience in following specifications. (Academic year—day and evening; summer 1968—Art 189-90 (3-3))
- 191-92 Advertising Design: Advanced Photography (3-3) CSA** Libonati
(Academic year—day)

THIRD GROUP

All third-group Art courses may be repeated for credit with the approval of the Department.

- 249 Theory of Design (3)** Teller
Application of design principles to painting, architecture, sculpture, and minor arts of today. Relationship of design principles to the contemporary artist and his work. Open to undergraduate students with permission of instructor. (Fall—as arranged)

* Fine Arts majors and Master of Fine Arts candidates should elect 6 semester hours of credit.

- *251-52 Ceramics IV (3 or 6-3 or 6) CSA** Hara
Personal glaze and clay formulation. Methods of instruction for the student who plans to teach. Laboratory fee, \$30 a semester. (Academic year—day and evening)
- *253 Ceramics V (3 or 6) CSA** Hara
Laboratory fee, \$30. (Fall and spring—as arranged)
- *265-66 Painting IV (3 or 6-3 or 6) CSA** Staff
(Academic year—day and evening; summer 1968—Art 265-66 (3-3))
- *275 Painting V (3 or 6) CSA** Staff
(Fall and spring—as arranged; summer 1968—Art 275 (3))
- *279-80 Sculpture IV (3 or 6-3 or 6) CSA** Taylor
(Academic year—as arranged; summer 1968—Art 279-80 (3-3))
- *281 Sculpture V (3 or 6) CSA** Staff
(Fall and spring—as arranged; summer 1968—Art 281 (3))
- 299-300 Thesis Research (3-3)** Staff
(Academic year—as arranged; summer 1968)

Biochemistry†

Professor C.R. Treadwell (Chairman)

Professorial Lecturers Sidney Udenfriend (*Intermediary Metabolism*), W.W. Burr, Jr. (*Isotopes*), R.W. Albers, Roscoe Brady, Jr., Arnold Schaefer, Sidney Shifrin, Edward Steers, Jr., W.F. Anderson, Peter Tishler (*Inherited Metabolic Disease*), Pedro Cuatrecasas (*Enzymology*)

Associate Professors B.W. Smith, G.V. Vahouny, J.M. Bailey

Assistant Professor A.S. Brecher

Special Lecturers Walter Mertz, Herbert Weissbach, A.C. Chung, J.C. Smith, Jr.

Master of Science in the field of Biochemistry.—Prerequisite: a Bachelor's degree. The undergraduate program must have included the following courses, or equivalent: Biological Sciences 1-2; Chemistry 11-12, 22, 51-52, 53-54; Physics 1, 2.

Required: the general requirements, pages 83-87, including Biochemistry 221-22, 227, 299-300. The remaining courses are to be selected from Biochemistry 224, 232, 241, 262, 295; or, with the approval of the adviser, from graduate courses in Microbiology, Chemistry, Physiology, or Pharmacology. It is usually not possible to arrange courses and research so that the student can be assured of completing all of the required work in one academic year.

Doctor of Philosophy fields of study in Biochemistry: Amino Acid Metabolism; Animal Nutrition; Biochemistry of Cancer; Biochemistry of Tissue Culture; Carbohydrate Metabolism; Chemistry and Metabolism of Carbohydrates, Lipids, Proteins, Complex Lipids; Intermediary Metabolism; Lipids; Metabolism of Purines and Pyrimidines; Metabolic Relationships of Insulin; Protein Biosynthesis; Protein Metabolism; Endocrinology; Metabolism; Metabolism of Connective Tissue; Nutrition; Tissue Respiration; and Vitamins.—See pages 83-85, 87-88, for requirements for the degree.

* Fine Arts majors and Master of Fine Arts candidates should elect 6 semester hours of credit.
† Staff of Instruction for the academic year 1967-68.

- 221-22 General Biochemistry (4-4)** Vahouny
Lectures and laboratory. Prerequisite: Chemistry 52, 54. Material fee, \$20 a semester. (Academic year—day)
- 224 Biochemistry of the Enzymes (1)** Staff
Biochemistry of enzymes and enzyme reactions. Prerequisite: Biochemistry 221. (1968-69 and alternate years: as arranged)
- *225 Biochemical Procedures (3)** B. Smith and Staff
Laboratory course. Material fee for nonmedical students, \$16 a semester. (Fall and spring—as arranged)
- *227 Biochemistry Seminar (1)** Staff
Current literature in biochemistry, mainly for graduate students, but open to limited number of specially qualified medical students. (Fall and spring—day)
- 232 Proteins and Amino Acids (1)** Steers, Shifrin
Prerequisite: Biochemistry 221. (Spring—Saturday morning)
- 241 Isotopes (3)** Burr
Theoretical characterization of isotopes and their applications in biology. Attention given to counting, health physics and radiation safety, autoradiography, chromatography. Laboratory fee for nonmedical students, \$16. (Spring—day)
- 251 Carbohydrate Metabolism (1)**
Prerequisite: Biochemistry 201 or 222. (1969-70 and alternate years)
- 252 Biochemistry of the Brain (1)** Albers, Brady
Primarily for medical students; open to limited number of graduate students. Recent biochemical developments in structure, functions, and metabolic processes unique to the brain. (Spring—day)
- 254 Human Nutrition (1)** Pollack
Primarily for medical students; open to limited number of graduate students. Application of nutritional principles in humans. (Spring—day)
- 256 Biochemistry of Organ Function (1)** Kramer
Primarily for medical students; open to limited number of graduate students. Emphasis on biochemical processes unique to particular organ systems; application of these processes to evaluation of function. (Spring—day)
- 258 Inherited Metabolic Diseases (1)** Tishler
Primarily for medical students; open to limited number of graduate students. Contribution of molecular biology to understanding of human mutations and hereditary diseases. Specific disease states and genetics of protein structure discussed. Prerequisite: Biochemistry 222. (Spring—Saturday morning)
- 260 Biochemistry of the Steroids (1)** O. Dodek
Primarily for medical students; open to limited number of graduate students. Basic chemistry of the steroids, pathways of biosynthesis and me-

* Content differs each time the course is offered; may be repeated for credit.

tabolism, regulatory mechanisms, physiologic effects, clinical measurement of endogenous steroids, clinical manifestations of steroid imbalance, steroid changes in pregnancy, and steroid therapy. 50 students. (Spring—day)

***262 Biochemistry of the Lipids (1)**

Vahouny

Primarily for graduate students; open to maximum of 15 medical students. Research techniques for study of lipid biochemistry. 1968-69 and alternate years: metabolism of lipids, including digestion, energy production, biosynthesis, function in specialized tissues and subcellular structures. 1969-70 and alternate years: chemistry, properties, occurrence of important classes of biological lipids. (Spring—day)

266 Biochemical Genetics (1)

Anderson

Primarily for medical students; open to limited number of graduate students. (Spring—Saturday morning)

***295 Research in Biochemistry (arr.)**

Staff

For freshman and sophomore medical students and graduate students. Participation in a project under investigation in the Department or one in a related field suggested by the student and approved by the Staff. (Fall and spring—as arranged)

299-300 Thesis Research (3-3)

Staff

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Biological Sciences†

Professors I.B. Hansen (*Chairman*), Edith Mortensen, S.C. Munson, A.H. Desmond, R.L. Weintraub, M.W. Schein (*Visiting*), T.G. Overmire (*Visiting*), Dana Abell (*Visiting*), Stanley Baker (*Visiting*), D.L. Wise (*Visiting*)

Professorial Lecturers K.C. Kates, L.B. Smith

Associate Professors J.M. Kaper (*Research*), Caroline Adams, Kittie Parker, D.S. Douglas, J.J.W. Baker (*Visiting*), S.O. Schiff

Associate Professorial Lecturers J.R. Buchheit, R.S. Sigafos, W.A. Shropshire, Jr., H.M. Cathey

Assistant Professors Gloria Hammack, L.J. Tilly, G.L. Fowler, M.J. Landy

Assistant Professorial Lecturer P.E. Spiegler

Lecturers Dorothy Hoelzer, Jessie Dickens, Barbara Sickles

Adjunct Lecturers T.E. Bowman, R.F. Cressey, W.D. Hope, M.L. Jones, L.S. Kornicker, D.L. Pawson, H.A. Rehder, Joseph Rosewater, C.F. Roper, D.F. Squires

* Content differs each time the course is offered, may be repeated for credit.

† Staff of Instruction for the academic year 1967-68.

*Bachelor of Arts or Bachelor of Science with a major in Biology (Departmental).—*Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Biological Sciences 1–2, or equivalent, and Chemistry 11–12.

Required: in addition to the general requirements, pages 74–78, a minimum of twenty-four semester hours of second-group courses which should include at least six hours in Biology, six in Botany, six in Zoology; and Biological Sciences 181–82.

*Bachelor of Arts or Bachelor of Science with a major in Botany (Departmental).—*Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Biological Sciences 1–2, or equivalent, and Chemistry 11–12.

Required: in addition to the general requirements, pages 74–78, a minimum of twenty-four semester hours of second-group courses in Botany or in a combination of Botany and Biology; and Biological Sciences 181–82.

*Bachelor of Arts or Bachelor of Science with a major in Zoology (Departmental).—*Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Biological Sciences 1–2, Chemistry 11–12.

Required: in addition to the general requirements, pages 74–78, a minimum of twenty-four semester hours of second-group courses in Zoology or Biology; and Biological Sciences 181–82.

*Master of Science in the field of Biology.—*Prerequisite: the equivalent of a Bachelor's degree from this University with a major in Biology, Botany, or Zoology.

Required: the general requirements, pages 83–87.

*Master of Science in the field of Botany.—*Prerequisite: the equivalent of a Bachelor's degree from this University with a major in Botany or Biology.

Required: the general requirements, pages 83–87.

*Master of Science in the field of Zoology.—*Prerequisite: the equivalent of a Bachelor's degree from this University with a major in Zoology or Biology.

Required: the general requirements, pages 83–87.

*Doctor of Philosophy fields of study in Biology: Cell Physiology, Cytogenetics, Cytology, and Molecular Genetics.—*See pages 83–85, 87–88, for requirements for the degree.

*Doctor of Philosophy fields of study in Botany: Cytogenetics, Microbial Genetics, Mycology, Paleobotany, Photobiology, Plant Ecology, Plant Pathology, Plant Physiology—Microorganisms, Plant Physiology—Vascular Plants, Taxonomy, and Vir-
ology.—*See pages 83–85, 87–88, for requirements for the degree.

*Doctor of Philosophy fields of study in Zoology: Aquatic Ecology; Comparative Physiology; Entomology—Insect Physiology; Herpetology; Histophysiology; Radiation Biology; Taxonomy, Anatomy, and Physiology of Mollusks; Vertebrate Anatomy and Taxonomy; Vertebrate Embryology and Morphogenesis; and Vertebrate Ichthyology.—*See pages 83–85, 87–88, for requirements for the degree.

*Doctor of Philosophy in the field of Biophysics (an interdepartmental field offered by the departments of Biological Sciences, Physics, and Physiology, see pages 201–3).—*See pages 83–85, 87–88, for requirements for the degree.

*Bachelor of Arts in Education with a teaching field in Biology.—*Prerequisite: the Education curriculum, pages 71–72.

Required: the Biology option and the professional courses listed on pages 97, 105.

Departmental prerequisite: Biological Sciences 1–2 is prerequisite to all second-group courses in Biology, Botany, and Zoology, except by permission of the instructor.

BIOLOGY

FIRST GROUP

1–2 Introductory Biology (4–4)

Munson and Staff

Lecture (3 hours), laboratory (3 hours). Introductory course leading to all second- and third-group courses in biology, botany, and zoology; also

provides the nonscience student with an understanding of the life sciences. Material fee, \$10 a semester. (Academic year—day and evening; summer 1968)

SECOND GROUP

108 Organic Evolution (3)

Munson

Theories of organic evolution and present ideas on principal lines of development in the plant and animal kingdoms; review of mechanisms involved in the process. (Spring—evening)

112 Bacteriology (4)

Weintraub

Lecture (2 hours), laboratory (4 hours). Introduction to structure, activities, biological roles, and industrial uses of bacteria and some related organisms. Prerequisite: one year of chemistry. Material fee, \$11. (Fall—day)

115 Cytology (3)

Schiff

Lecture (1 hour), laboratory (4 hours). Morphological and physiochemical properties of plant and animal cells and their components. Analysis of slides, cytological techniques, and preparation of slides. Recommended: one year of chemistry. Material fee, \$11. (Fall—day)

118 Advanced Cytology (3)

Schiff

Lecture (1 hour), laboratory (4 hours). Cell mechanisms, including chromosome pairing and movement, bacterial, viral and human cytogenetics, sex determination, chromosome abnormalities, and cytology of cancer cells. Laboratory will be in the nature of a cytological project, to be selected by the student with the concurrence of the instructor. Prerequisite: Biological Sciences 115. Material fee, \$11. (Spring—day)

119 Cell Biochemistry (4)

Weintraub

Lecture (2 hours), laboratory (3 hours). Introduction to composition and metabolism of generalized cells of plants, animals, and microorganisms. Prerequisite: Chemistry 11-12; 50 or 51-52; or equivalent. Material fee, \$11. (Fall—evening)

120 Cell Physiology (4)

Weintraub

Lecture (2 hours), laboratory (3 hours). Study of cell processes including absorption, excretion, growth, division, contraction, conduction, locomotion, and photosynthesis. Prerequisite: Biological Sciences 119 or permission of instructor. Material fee, \$11. (Spring—day)

127 Genetics (4)

Fowler

Lecture (3 hours), laboratory (2 hours). Introductory course. Basic aspects of transmission of genetic traits with particular reference to the chemical basis of heredity and gene action. Material fee, \$8. (Fall and spring—day; summer 1968)

138 Advanced Genetics (3)

Fowler

Emphasis on genetic studies with bacteria, bacteriophage, certain fungi (biochemical genetics), and some aspects of human genetics. Original papers in the field of chromosome mechanics and cytogenetics will be considered. Prerequisite: introductory course in genetics. (Spring—day)

167 Radiation Biology (3) Schiff

Nature of radioactive particles and emissions; their effects on biological materials, chiefly at the cellular level; genetic effects of radiation. Recommended but not required: two years of biological sciences and chemistry or physics. (Fall—day)

168 History of Biology (3) Hammack

Lecture and discussion. Survey of original publications which contributed to the major concepts of modern biology. (Spring—day)

171 Undergraduate Research (arr.) Staff

Admission by permission of the staff member concerned. May be repeated for credit. (Fall and spring—as arranged)

181-82 Senior Seminar (1-1) Staff

An integrating and coordinating course required of seniors majoring in Biology, Botany, or Zoology. (Academic year—day)

THIRD GROUP**206 Seminar: Radiation Biology (3) Schiff**

Actions of different kinds of radiation on living material at subcellular, cellular, and organismal levels; effects of environmental alterations on radiation-induced damage; practical considerations of exposure to radioactivity. Prerequisite: Biological Sciences 167 or equivalent. (Spring—evening)

207 Seminar: Origin of Life (3) Weintraub

(1969-70 and alternate years)

219 Seminar: Topics in Cell Biochemistry (3) Weintraub

(1968-69 and alternate years: spring—evening)

220 Seminar: Cell Physiology (3) Shropshire

Review in depth of selected topics. (1969-70 and alternate years)

227 Seminar: Genetics (3)

(1969-70 and alternate years)

295 Research (arr.) Staff

Investigation of special problems. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

299-300 Thesis Research (3-3) Staff

(Academic year—as arranged; summer 1968)

FOURTH GROUP**398 Advanced Reading and Research (arr.) Staff**

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.) Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

BOTANY

SECOND GROUP

105 Field Botany—Seed Plants (3)

Parker

Lecture (2 hours), laboratory and field (4 hours). Survey of local flora emphasizing field characters; practice in plant collecting and identification using semitechnical texts. (Fall—day)

106 Field Botany—Lower Plants (3)

Adams

Lecture (1 hour), laboratory and field (4 hours). Primarily for nonspecialists, emphasizing algae, mosses, and ferns. (Summer 1968)

109 Plant Morphology (3)

Adams

Lecture (2 hours), laboratory (3 hours). Anatomical, comparative study of root, stem, leaf, and flower of Angiosperms. Meristem development and morphogenesis of organs. Material fee, \$8. (Fall—day)

110 Plant Morphology (3)

Adams

Lecture (2 hours), laboratory (3 hours). Structure, development, and life cycle of representative Algae, Bryophytes, Pteridophytes, and Gymnosperms. Material fee, \$8. (Spring—day)

125 Plant Taxonomy (4)

Parker

Lecture (2 hours), laboratory and field (4 hours). Study of evolutionary relationships among vascular plants; attention to principles of classification, morphology, adaptive mechanisms, phylogeny, and family characters of Angiosperms. (Spring—day)

132 Mycology (4)

(1968-69)

Lecture (2 hours), laboratory (3 hours). Material fee, \$8. and alternate years: spring—evening

134 Plant Pathology (4)

(1969-70)

Lecture (2 hours), laboratory (3 hours). Material fee, \$8. and alternate years)

135 Plant Physiology (4)

Hammack

Lecture (2 hours), laboratory (4 hours). Prerequisite: Chemistry 11-12. Material fee, \$11. (Fall—day)

141 Plant Ecology (4)

Sigafos

Lecture (2 hours), laboratory and field (4 hours). (1968-69 and alternate years: fall—evening)

THIRD GROUP

221 Seminar: Plant Taxonomy (3)

Parker

(1969-70 and alternate years)

235 Seminar: Plant Physiology (3)

Hammack

(1968-69 and alternate years: spring—evening)

242 Seminar: Plant Ecology (3)

Sigafos

(1969-70 and alternate years)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

ZOOLOGY

SECOND GROUP

- 101-2 Invertebrate Zoology (3-3)** Mortensen
Lecture (1 hour), laboratory (4 hours). Systematic study of invertebrate forms, including morphology, physiology, classification, life histories, and phylogenetic relationships. Material fee, \$11 a semester. (Academic year—day)
- 104 Comparative Vertebrate Anatomy (4)** Landy
Lecture (2 hours), laboratory (4 hours). Origin, early history, gross and comparative anatomy of vertebrates. Dissection of representative present-day forms. Material fee, \$11. (1968-69 and alternate years: fall—day and evening, spring—day; 1969-70 and alternate years: fall and spring—day)
- 143 Animal Ecology (4)** Tilly
Lecture (3 hours), laboratory and field (3 hours). Laboratory fee, \$8. (Fall—day; summer 1968)
- 144 Aquatic Ecology (4)** Tilly
Lecture (3 hours), laboratory and field (3 hours). Principles applied to aquatic systems with special reference to physicochemical properties, typical habitats and communities. Prerequisite: Biological Sciences 143 or permission of instructor. Laboratory fee, \$8. (Spring—day)
- 145 Introduction to Vertebrate Embryology (3)** Hansen
Lecture (1 hour), laboratory (4 hours). Origin and early development of the individual, formation of organ systems. Emphasis on frog, chick, and pig, with reference to human embryo. Material fee, \$8. (1968-69 and alternate years: fall and spring—day; 1969-70 and alternate years: fall—day and evening, spring—day; summer 1968)
- 148 Histology (4)** Desmond
Lecture (2 hours), laboratory (4 hours). Introduction to microscopical anatomy of normal tissues and organs. Material fee, \$8. (1968-69 and alternate years: fall and spring—day; 1969-70 and alternate years: fall—day, spring—evening)
- 152 Protozoa (3)** Mortensen
Lecture (1 hour), laboratory (4 hours). Introduction to protozoa: classification, life histories, and physiology; emphasis on free-living types. Material fee, \$8. (1969-70 and alternate years)
- 154 Vertebrate Zoology (4)** Landy
Lecture (2 hours), laboratory and discussion (3 hours). Vertebrate structure and function; discussion of variation and adaptation in vertebrate forms. Individual work emphasized. Prerequisite: Biological Sciences 104 or permission of instructor. Material fee, \$8. (Spring—evening)
- 155 Parasitology (3)** Kates
Lecture (1 hour), laboratory (4 hours). Introduction to animal parasitology; survey of parasitic types from protozoa through arthropods. Material fee, \$8. (1969-70 and alternate years)

157 Comparative Endocrinology (3)

Desmond

Endocrine systems of vertebrate classes. Differences and similarities between endocrine mechanisms of fish, amphibians, reptiles, birds, and mammals, to illustrate broad trends of evolution in endocrine systems. (Fall—day)

161 Entomology (3)

Munson

Lecture (2 hours), laboratory (2 hours). Elementary morphology, physiology, and ecology of insects; introduction to taxonomy of more important groups. Material fee, \$8. (1969–70 and alternate years)

162 Insect Physiology (3)

Munson

Lectures and laboratory on physiology of insects. Admission by permission of instructor. Material fee, \$8. (1969–70 and alternate years)

163 Human Physiology (3)

Douglas

Introduction to the function of organ systems of the human body. Intended for nonbiology majors. (Fall—day)

164 Vertebrate Physiology (4)

Douglas

Lecture (3 hours), laboratory (3 hours). Survey of the chemical and physical basis of function in vertebrate organ systems. Experiments with a variety of animals illustrate classical as well as modern approaches to animal physiology. Background in biology and chemistry strongly recommended. Material fee, \$11. (Spring—day)

THIRD GROUP**204 Seminar: Invertebrate Zoology (3)**

Mortensen

Study of original publications on hormones of invertebrate animals. (1968–69 and alternate years: fall—evening)

245 Histochemistry (3)

Desmond

Theory and application of chemical techniques in determining changes in the amount and distribution of inorganic and organic constituents of tissues during different physiological and pathological conditions. (1969–70 and alternate years)

247 Morphogenesis (3)

Hansen

Lectures and reports on experimental morphology. Emphasis on early embryonic development. Prerequisite: Biological Sciences 145 or equivalent. (1968–69 and alternate years: fall—evening)

250 Seminar: Regeneration (3)

Hansen

Discussions and reports on theories and experimental evidence in both vertebrate and invertebrate animals. (1968–69 and alternate years: spring—evening)

251 Seminar: Vertebrate Zoology (3)

Desmond

Study of current publications in the field of histophysiology. and alternate years) (1969–70)

253 Seminar: Animal Behavior (3)

Schein

(Fall—evening)

265 Comparative Animal Physiology (3)
(Formerly Biological Sciences 165)

Douglas

Introduction to study of the physiological basis of adaptation of animals to environments. Attention given to animals with ability to live under unusual or extreme environmental conditions. (Fall—evening)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

Biology

See "Biological Sciences."

Biophysics—Graduate Study

COMMITTEE ON BIOPHYSICS 1967-68

A.H. Desmond (*Chairman*), D.B. Cowie, Herbert Jehle, H.G. Mandel, C.S. Tidball, S.S. Yeandle

The Graduate School of Arts and Sciences offers an interdepartmental program leading to the degree of Doctor of Philosophy in the field of Biophysics. This interdepartmental program is directed by the departments of Biological Sciences, Physics, and Physiology. Entry into this program may be made through any one of these departments; however, the final program must be approved by the Committee on Biophysics. Interested students should consult either the Chairman of the Committee on Biophysics or the chairman of the department of Biological Sciences, Physics, or Physiology.

No field of undergraduate study is stipulated; however, the undergraduate program must have included the following courses, or equivalent: Biological Sciences 1-2; Chemistry 22; Mathematics 24; Physics 32, 52. In addition, candidates should present advanced undergraduate work in either chemistry, mathematics, or physics.

Doctor of Philosophy fields of study in Biophysics: Electron Microscopy, Experimental Biophysics, Instrumentation, Membrane Physics, Membrane Transport, Molecular Biology, Neurobiology, and Theoretical Biophysics.—See pages 83-85, 87-88, for requirements for the degree.

The program will normally be selected from the following courses.

ANATOMY

205 Microscopic Anatomy (3)

Telford and Staff

260 Electron Microscopy in Cellular Biology—Lecture (1)

Blanchette

261 Electron Microscopy in Cellular Biology—Laboratory (2)

Blanchette

APPLIED SCIENCE*

101 Materials Science (3)

Staff

113-14 Engineering Analysis I-II (3-3)

Staff

* See the School of Engineering and Applied Science Catalogue.

- 211 *Mathematical Methods in Applied Science I* (3)
 212 *Mathematical Methods in Applied Science II* (3)
 280 *Classical Thermodynamics* (3)
 295 *Statistical Thermodynamics* (3)

Staff
 Staff
 Staff
 Staff

BIOCHEMISTRY

- 221-22 *General Biochemistry* (4-4)
 241 *Isotopes* (3)
 258 *Inherited Metabolic Diseases* (1)

Vahouny
 Burr
 Tishler

BIOLOGICAL SCIENCES**BIOLOGY**

- 112 *Bacteriology* (4)
 115 *Cytology* (3)
 118 *Advanced Cytology* (3)
 119 *Cell Biochemistry* (4)
 120 *Cell Physiology* (4)
 167 *Radiation Biology* (3)

Weintraub
 Schiff
 Schiff
 Weintraub
 Weintraub
 Schiff

ZOOLOGY

- 148 *Histology* (4)
 164 *Vertebrate Physiology* (4)
 245 *Histochemistry* (3)

Desmond
 Douglas
 Desmond

CHEMISTRY

- 111-12 *Physical Chemistry* (3-3)
 113 *Physicochemical Measurements* (2)
 114 *Physicochemical Measurements* (2)
 122 *Instrumental Analysis Lectures* (2)
 213 *Chemical Thermodynamics* (3)

Wood
 Minn
 Schmidt, Minn
 Schmidt
 Wood

ENGINEERING*

- 100 *Introductory Electrical Engineering Laboratory* (3)
 101 *Measurement Laboratory* (3)
 105-6 *Electrical Engineering Laboratory I-II* (3-3)
 121 *Switching Networks* (3)
 122 *Digital Computers* (3)
 171 *Machine and Assembly Language Programming* (3)
 222 *Electronic Measurements in Medicine* (3)
 223 *Instrumentation in Medical Electronics* (3)
 288 *Digital Computer Programming Systems* (3)
 289 *Analog and Hybrid Computers* (3)

Staff
 Staff
 Staff
 Staff
 Staff
 Staff
 Staff
 Staff
 Staff

* See the School of Engineering and Applied Science Catalogue

MATHEMATICS

111 <i>Mathematics for Engineers and Physicists I</i> (3)	Staff
112 <i>Mathematics for Engineers and Physicists II</i> (3)	Staff
139 <i>Advanced Calculus I</i> (3)	Staff
140 <i>Advanced Calculus II</i> (3)	Staff
142 <i>Theory of Differential Equations</i> (3)	Staff

MICROBIOLOGY

211 <i>Microbiology</i> (4)	Staff
231 <i>Immunology</i> (1)	Parlett
233 <i>Biology of Viruses</i> (4)	Robbins
257 <i>Immunochemistry</i> (4)	Wright

PHARMACOLOGY

201 <i>Pharmacology</i> (8)	Mandel and Staff
256 <i>Molecular Pharmacology</i> (2)	F. Hahn

PHYSICS

116 <i>Quantum and Solid State Physics</i> (3)	Staff
163 <i>Optics</i> (3)	Staff
164 <i>Thermodynamics</i> (3)	Staff
165-66 <i>Electromagnetic Theory</i> (3-3)	Staff
167-68 <i>Modern Physics</i> (3-3)	Staff
170 <i>Elementary Solid State Physics</i> (3)	Staff
172 <i>Biophysics</i> (3)	Jehle
233-34 <i>Quantum Mechanics</i> (3-3)	Staff
241 <i>Statistical Mechanics</i> (3)	Staff
243 <i>Solid State Physics: Structure and Binding</i> (3)	Eisenstein
244 <i>Solid State Physics: Electronic Processes in Metals</i> (3)	Eisenstein
248 <i>Elementary Particles</i> (3)	Jehle
249 <i>Statistical Processes</i> (3)	Zuchelli

PHYSIOLOGY

201 <i>Physiology</i> (8)	Staff
259 <i>Introduction to Electron Microscopy</i> (3)	Cassidy
271 <i>Electronic Instrumentation</i> (3)	Chowdhury

STATISTICS

113 <i>Computer Programming</i> (3)	Thomas and Staff
114 <i>Introduction to Computer Operating Systems</i> (3)	Thomas and Staff
115 <i>Programming Languages</i> (3)	Thomas and Staff
117 <i>Analysis of Variance</i> (3)	Staff
118 <i>Regression Analysis</i> (3)	Staff
197 <i>Digital Computer Programming with Applications</i> (3)	Thomas

Botany

See "Biological Sciences."

Business Administration*

Professors J.L. Jessup, J.C. Dockeray, R.B. Eastin, R.F. Ericson, G.L. Lippitt, Charles Bradley, D.D. Roman

Professorial Lecturers C.W. Clewlow, L.C. Collins, C.E. Houston, R.A. Kaye, K.F. McClure, J.P. Murphy, J.N. Stonesifer, M.H. Schwartz, Tom Kouzes, C.G. Berns, G.C. Jacobus, E.A. Woody

Associate Professors J.F. McCarthy, Jr., J.H. Walters, Jr., H.R. Page (*Chairman*), H.C. Demoady, E.R. Magruder, P.D. Grub, M.M. Wofsey, G.R. Allen, Guy Black (*Research*), Rodney Eldridge, Edward Mock

Associate Professorial Lecturers C.M. Campbell, J.F. Doubleday, George Idelson, Jerome Bracken, L.B. Pouliot, W.G. Wells, Jr., Clifford Longest, H.A. Green, R.N. Hampton, W.D. Tribble, Samuel Culbert, Thomas O'Connor, C.R.M. Tuttle

Assistant Professors L.C. Smith, G.F. Conner, R.A. Barrett, R.F. Hartley, J.R. Rizzo, J.R. Roman, Jr., J.H. Norton, Elizabeth Adams, Jack Waldrip, W.E. Smith

Assistant Professorial Lecturers R.J. Bond, J.F. Regan, Leslie This, J.E. Daly, Jr., G.R. Allen, Jr., D.J. Weidman, G.J. Glassman, B.H. Gordon, R.M. Soland, J.W. Clark, M.M. Dietch, Jr., Leonard Ackerman, F.R. Bahr, R.W. Hagauer, Maurice Kogan, J.A. Marlin, E.P. Mikols, W.J. Ryan, C.M. Unkovic, Therion Tedder, N.R. Harbaugh, R.R. Thelwell

Instructor J.R. Glennie

Lecturers C.R. Julian, T.M. Ryan, C.S. Bunker, W.G. Locke

Bachelor of Business Administration with a major in Business Administration or International Business.—See pages 120–22, 123–26, 126–127.

Master of Business Administration in the fields of Business Administration, International Business, or Personnel Administration.—See pages 128–31, 132, 133–34.

Doctor of Business Administration.—See pages 138–39.

BUSINESS ADMINISTRATION

FIRST GROUP

51 Introduction to Business (3)

Page, Conner

The business environment; structure, activities, and problems of business enterprise; its contribution to society; careers in business. (Fall—day and evening; spring—day; summer 1968)

SECOND GROUP

102 Fundamentals of Management (3)

Conner

Planning, organizing, directing, coordinating, and controlling activities of the administrative unit; evolution of management thinking. (Fall and spring—day and evening; summer 1968)

* Staff of Instruction for the academic year 1967–68.

105 Personnel Management (3)

The labor force and labor markets. Industrial personnel and manpower programs, organizations and policy in personnel activities. (Fall—day; spring—evening; summer 1968)

106 Problems in Personnel Management (3)

Principles and problems of personnel management and industrial relations illustrated by cases drawn from industry and government. Prerequisite: Business Administration 105. (Fall—evening; spring—day)

107 Collective Bargaining (3)

Characteristics of American unionism and collective bargaining; economic, social, and public policy considerations. Management's role in the negotiation and administration of collective bargaining agreements. (Fall—evening)

109 Office Management (3)

Dietch

Organization and management of the office, office and information systems, planning and execution of work, systems analysis, supervision problems. (Fall and spring—evening)

113 Real Estate (3)

Doubleday

Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation. (Fall—evening)

118 Introduction to Data Processing (3)

Demoody

Basic principles and methods of data processing. Introduction to fundamentals, potentials, and problems of automatic data processing as a tool of management. (Fall and spring—day; summer 1968)

119 Data Processing Programming (3)

McCarthy

Basic principles and methods of computer programming. Introduction to computer programming concepts; form and character of instructions and programming schema for leading types of digital electronic computers. Prerequisite: Business Administration 118 or permission of instructor. (Fall and spring—evening)

120 Data Processing Systems (3)

Adams

Basic principles and methods of data systems analysis, design, and implementation. Emphasis on relationship between equipment systems and management information systems; development of data processing systems. Prerequisite: Business Administration 118 or permission of instructor. (Fall and spring—day)

121 Fundamentals of Insurance (3)

Doubleday

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual. (Fall—evening)

122 Life Insurance and Estate Planning (3)

Campbell

Life insurance contracts, their use in providing protection and estate development. (Spring—evening)

131 Business Finance (3)

Mock

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1968)

132 International Business Finance (3)**Eldridge**

Introduction to principles, problems, practices, and institutions of international finance. Emphasis on documents and procedures used in international transactions, international financial markets, rates of exchange and balance of payments, and interregional and international aspects of foreign exchange. (Fall—day)

136 Credit Management (3)

Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1-2. (Spring—evening)

138 Investments (3)**Dockeray**

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1-2, Business Administration 131. (Spring—evening)

141 Basic Marketing Management (3)**Walters**

Introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2. (Fall—evening; spring—day; summer 1968)

142 Retail Marketing (3)**Hartley**

(Formerly Business Administration 251 Retail Management)

Retail marketing perspective; problems of location, financing, merchandising policy, advertising and sales promotion, operating policy. Trends in retailing. (Not offered 1968-69)

143 Marketing Research (3)**Hartley**

Principles and practices of marketing research with particular emphasis on basic methods and techniques, sources and interpretation of data, and presentation of results. (Fall—evening)

144 International Marketing Management (3)**Glennie**

Introductory course; analysis of the international marketing position of the United States, channels for international marketing, international advertising media, legal aspects of international marketing, methods of preparing foreign market surveys, development of policies. (Fall—evening)

145 Sales Management (3)**Hartley**

Organization of sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141. (Spring—evening)

147 Advertising (3)**Idelson**

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a finished advertisement before potential customers; evaluation, criticism, and control of advertising. (Spring—evening)

158 Physical Distribution Management (3)

Distribution from shipper's point of view; problems of plant location, inventory control, warehousing; traffic management emphasized, including private carriage. (Fall—evening)

- 161 **Commercial Law: Contracts, Sales, Agency, and Bailments (3)** Collins, McClure
(Fall—day and evening; summer 1968)
- 162 **Commercial Law: Negotiable Instruments, Property, Mortgages (3)** Collins, Murphy
(Spring—day and evening)
- 163 **Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts (3)** Murphy
(Not offered 1968-69)
- 171 **Principles of Transportation (3)** J. Roman
Impact of intercity transportation systems on society. Emphasis on modal differences in development, economic characteristics, and regulation.
(Fall—evening)
- 172 **Public Utilities (3)** Glassman
Legal and economic meaning of public utility concept; development, services, economic characteristics, rate making, and regulation of utility industries, with emphasis on electric, gas, and telephone industries. (Spring—evening)
- 173 **Transportation Systems Management (3)** J. Roman
Comparative study, from the standpoint of various carrier modes, of management problems common to all modes of domestic and international transportation. (Spring—day)
- 174 **Urban Transportation (3)** J. Roman
Problems of developing balanced transportation systems for urban areas—area needs, modal evaluation, cost effectiveness, finance, and marketing.
(Fall—evening)
- 175 **Introduction to Foreign Trade (3)** Kaye, Grub
The physical movement of goods in international business; conditions essential for successful trading; development of a hypothetical export shipment; including examples of documentation required and discussion of procedural problems from a management point of view. Emphasis on ocean marine insurance and export traffic management policy. Prerequisite: Economics 1-2. (Fall and spring—evening)
- 176 **International Business Theory and Policy (3)** Eldridge
Causal relationships underlying international business transactions, role of government in international trade, international agreements between private producers, trade with developing nations, developing international business policy. (Spring—evening)
- 177 **Foreign Markets (3)** Kogan, Glennie
Patterns of world trade by countries and commodities, selected regional analysis, and in-depth market studies. Prerequisite: Business Administration 144 and 175 or permission of the instructor. (Spring—evening)
- 178 **Management of International Business Operations (3)** Grub
Analysis of overseas projects according to purpose and type of organization; case studies involving development and management of overseas mar-

keting programs and other operations in different world areas. (Spring—evening)

- 181 Manufacturing Production (3)** D. Roman, Clark
Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries. (Spring—evening)

- 191 Business Reports and Analyses (3)**
Sources of management information, array and analysis of data, interpretation and presentation of findings. (Fall—day and evening; spring—day; summer 1968)

- 195 Controllership (3)** Regan
Duties and responsibilities of the controller in a business organization; relations of controller to other departments and regulatory bodies; the controller's relation to price setting and inventories, depreciation policies, internal auditing, expense control and budgeting; financial reports to management, stockholders, and employees. Prerequisite: Accounting 1-2. (Not offered 1968-69)

- 198 Case Problems in Management (3)** Eastin, Page
Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141. (Fall—day; spring—day and evening)

THIRD GROUP

- 201 Social Environment of Business (3)** Ericson
American business history stressing social influences. Business problems faced, decisions made, and actions taken by the historical succession of owners and managers. Business responsibility, ethics, and morality. (Fall—evening)

- 203 Legal Environment of Business (3)** Timbers
Business under the U.S. Constitution, Federal legislation, legal precedents, and agency orders. Major emphasis on Supreme Court decisions relating to business. (Spring—as arranged)

- 208 Personnel Management and Industrial Relations (3)** Barrett
Survey of personnel management practices and procedures, including labor-management relations. (Fall—day and evening; spring—evening; summer 1968)

- 209 Seminar: Personnel Management (3)** Eastin
Discussion of industrial personnel and manpower management, and research in advanced problems. (Fall—evening; summer 1968)

- 210 The Personnel Manager (3)** Jessup
The personnel manager and his place in the organization, relations of personnel manager to other executives, personnel manager's policy role and relations with chief executive. Key problems of the senior personnel executive. (Spring—evening)

- 212 Unionism and Collective Bargaining (3)** Norton
The American labor movement. Collective bargaining and the conduct of labor relations under collective bargaining agreements. (Fall—evening)

213 Current Issues in Unionism, Collective Bargaining, and Labor Relations (3)

Current problems and issues. Prerequisite: Business Administration 212. (Spring—evening)

215 European Common Market (3)

Analysis of treaty establishing European Economic Community: institutions of EEC and of member states and the internal law of member states as they affect doing business in EEC; series of problems arising out of establishing and operating business with and within EEC. Background in international law and antitrust law desirable. (Same as Law 541 (2)).* (Fall or spring—as arranged)

216 Seminar: International Commercial Transactions (3)

Role of lawyer and regulation of his practice, survey of problems of foreign client doing business with United States or its nationals, developments in foreign trade and investment among industrialized countries, special treatment of role of private enterprise and government agency operations in developing nations. (Same as Law 438 (2)).* (Not offered 1968-69)

217 Seminar: International Technical and Economic Assistance (3)

Programs of technical and economic assistance for development overseas conducted by United States, United Nations, Organization of American States. Special attention to work being done in Latin America. Problems of law, policy, program, and administration. Evaluation of alternate operating techniques and results achieved by these programs. Open also to qualified graduate students in the field of economics, international affairs, and political science. (Same as Law 542 (2)).* (Fall or spring—as arranged)

218 Legal Aspects of International Business Transactions (3)

U.S. law and practice, including current antitrust and tax problems; brief comparison with British and Civil Law systems; international law, foreign contracts, choice of law; currency considerations; effect of SEC laws and regulations; international trade, including GATT and reciprocal trade arrangements; sources of finance, both United States and foreign, private and public; including international organizations; and selected case studies. In addition to the regular lecturers, there will be guest lecturers in their specialties. Prerequisite: Law 303. (Same as Law 427 (2)).* (Fall or spring—as arranged)

225 Seminar: Manufacturing Production (3)

D. Roman

Examination of production technology, including new manufacturing processes, materials, products, equipment, and facilities. Implications of emerging technology in managing the production function. Cases, lectures, and individual student research. Prerequisite: Business Administration 181 or permission of instructor. (Spring—evening)

229 Seminar: Administration of Research and Development (3)

D. Roman

Examination of technological, political, and economic factors affecting the R&D environment; operational aspects; management problems in military,

* Students registering for Business Administration 215, 216, 217, or 218 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

governmental, and industrial organizations; project selection, resource allocation, personnel, planning and control, measurement and evaluation. (Fall—evening)

- 231 Corporate Financial Problems (3)** Dockeray, Mock
Financial practice in promotion, consolidation, and mergers; capital structure adjustments; and reorganization. (Fall—evening; summer 1968)
- 232 Seminar: Business Finance (3)** Dockeray, Mock
Research in advanced financial problems. (Spring—evening; summer 1968)
- 233 Seminar: International Business Finance (3)** Eldridge
Problems in international business finance; role of foreign trade and business investment in economic development. (Spring—evening)
- 235 Financial Management (3)**
Problems of financial management encountered in the organization and operation of a corporation; planning financial structure, obtaining and managing capital, issuing and placing securities, administering income, security arrangements. Primarily taught by the case method. Prerequisite: Accounting 215, 276; Business and Public Administration 201. (Fall or spring—as arranged)
- 237 Investment Analysis (3)** Dockeray, Hagauer
Advanced course in applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138. (Fall—evening)
- 238 Seminar: Investments (3)** Dockeray
Research in investment problems, techniques of selection and the management of various types of funds. Prerequisite: Business Administration 138. (Spring—evening)
- 241 Advanced Marketing Management (3)** Walters, Hartley
Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Tools useful in decision making. Case analysis. (Fall and spring—evening; summer 1968)
- 242 Seminar: Marketing Theory (3)** Hartley
Critical review of the development of marketing thought and important marketing literature. Special and current problems and/or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 241. (Spring—evening)
- 243 Seminar: Marketing Research (3)** Hartley
Research as an aid to decision making and increased efficiency in marketing, marketing research process, critical appraisal of methods and results, applications of marketing research. Cases, selected readings, and research projects. Prerequisite: a course in basic statistics. (Spring—evening)
- 246 Consumer Behavior (3)** Hartley
Consumer decision making in the market place; research in pertinent interdisciplinary studies in psychology, sociology, and other behavioral fields; present and potential applications for marketing. (Fall—evening)

- 247 Advertising Management (3)** Walters
Case studies and text material dealing with executive determination of advertising organization, basic strategy relative to marketing program, promotional program, advertising appropriation, preparation and scheduling of advertisements, media selection, and determination of effectiveness. Advertising research and economic and social aspects. (Fall—evening)
- 248 International Marketing (3)** Walters
Organization for international marketing, foreign demand analysis, product development and policies, marketing structure and trade channels, advertising and promotion problems and policies, pricing, credits and collections, and legal aspects. Particular emphasis on development of effective international marketing strategy. (Fall and spring—evening)
- 249 Seminar: Comparative Marketing (3)** Walters
Theoretical foundation for advanced work in international business. Evaluation of domestic marketing systems of different countries with particular attention to the manner in which economic and social forces create similarities and differences in performance of the marketing function. Marketing in Western Europe, Latin America, the socialist bloc, and selected underdeveloped areas of Africa and Asia. (Spring—evening)
- 253 Distribution Logistics (3)** Walters
Application of the systems concept to problems of physical distribution and supply of goods. Role of logistics in the economy and the business firm, transportation rates and services, location theory and problems, customer service standards pricing, inventory control, information flow, scheduling, allocation, warehousing, traffic, and logistics system organization. (Spring—evening)
- 255 Seminar: International Trade I (3)** Grub, Eldridge
Research, analysis, and discussion of public and private foreign trade institutions; principles and theories of international trade; role of foreign trade and investment on U.S. balance of payments; problems and changing patterns in U.S. trade in the Western Hemisphere. (Fall—day and evening)
- 256 Seminar: International Trade II (3)** Grub, Eldridge
Research, analysis, and discussion of international problems arising from economic integration; emphasis on European Economic Community; U.S. trade with developing nations; East-West trade problems and potential; foreign trade policy of the United States. (Spring—evening)
- 257 The Manager in the World Economy (3)** Grub
(Formerly *Operation of the Multinational Firm*)
Analysis and discussion of problems in international business by use of the case method, including international market entry and expansion; operating policies, procedures, and problems of multinational companies; developing executives for international business. (Spring—evening)
- 258 Colloquium in International Business (3)** Grub
Primarily for doctoral students. Research on selected problems in international business with emphasis upon national and international policies regarding regionalism, trade barriers, investment incentives, international organization, foreign aid and development assistance and its relation to trade with developing nations, and trade with the Communist Bloc. (Fall—evening)

261-62 Managerial Economics (3-3)

Bradley

(Formerly Business Economics I and II)

Managerial applications of economic analysis. Utilizing economic theory and statistics in business decisions involving profits, prices, production, investments, and inventories; and in business forecasting. Prerequisite: Business and Public Administration 203, Economics 217-18, and Statistics 111, 112; or equivalent; or consent of instructor. (Academic year—evening)

265 Seminar: Managerial Economics (3)*(Formerly Business Economics III: Advanced Topics)*

Primarily for doctoral students. Case studies and problems in use of economic statistics, operations analysis, and other developing techniques in mathematics applied to empirical business decisions. Prerequisite: Business Administration 261-62 or consent of instructor. (Spring—evening)

275 Seminar: Transportation (3)

J. Roman

Problems and special areas of interest in transportation. (Spring—evening)

280 Procurement and Contracting (3)

Ryan

(Formerly Business Administration 250)

Survey and overview of procurement and contracting practices and procedures in government and industry. (Fall—evening)

281 Purchasing Principles and Practices (3)

Industrial purchasing practices and principles. Organization and functions of the purchasing department. Types of purchase agreements, source selection, competition and negotiation, policies and ethics. (Fall or spring—as arranged)

282 Government Contract Administration (3)

Surveillance over performance of contract. Rights and obligations: changes, suspension of work, default, termination for the convenience of the government, inspection, warranties, procedures for the settlement of controversies on government contracts. (Fall or spring—as arranged)

283 Pricing and Negotiation (3)

Collecting and evaluating data for pricing purposes. Negotiating profits. Weighted guidelines and other attempts at formalizing the profit computation. Negotiation procedures and techniques. (Fall or spring—as arranged)

284 Procurement Data Management (3)

Technical data and the procurement process, contract work statements, performance specifications, detailed design drawings, "or equal" purchase descriptions and other types of work statement. The impact of government policies on work statement preparation. Control of contract performance by configuration control and base line management systems. Proprietary data. (Fall or spring—as arranged)

285 Systems Procurement and Project Management (3)

D. Roman, Page

Development and procurement of major systems. Project management and the impact of this technique on the procurement process. Procurement planning—from concept formulation through contract definition, development, and manufacture. (Spring—day)

286 Government Contracts (2)

Survey of basic law underlying government procurement, basic power and limitations on Federal Government in entering into contracts, administrative and legislative policies governing these contracts, advertised and negotiated procurement procedures, forms of contracts and clauses used. (Same as Law 355) (Not offered 1968-69)

287 Government Procurement Law (2)

Survey of the law pertaining to government procurement including an analysis of the unique features of government contracting and a discussion of the functions of Congress, the Executive branch, and the Courts in the procurement process. (Same as Law 431) (As arranged)

288 Formation of Government Contracts (2)

Detailed coverage of the rules and practices followed in arriving at contracts between the Government and private parties. Comparison in depth of advertised and negotiated procurement and analysis of the techniques used in pricing and arriving at the terms of such contracts. (Same as Law 432) (As arranged)

289 Performance of Government Contracts (2)

Discussion of the substantive legal problems that most frequently arise during the performance of government contracts. Interpretation of specifications and the most generally used contract clauses, and analysis of the rights of the parties when performance in accordance with the terms of the contract is not obtained. (Same as Law 433) (As arranged)

290 Government Contract Claims and Litigation (2)

Analysis of the methods which can be used by the parties to a government contract to obtain legal relief, including detailed coverage of the disputes procedure, actions for breach of contract, and forms of equitable and extraordinary relief. (Same as Law 434) (As arranged)

291 Seminar: Business Management (3)

Eastin

Research on various phases of management as practiced in American industry. (Fall and spring—evening)

293 Business Research (3)

May be repeated once for credit. (Fall or spring—as arranged)

295 Business Decision Simulation (3)

Managerial decision making in a diversified multinational firm. Students are organized into teams in a simulated competitive environment in which a complex situation is played out using computers. Prerequisite: advanced Master's or doctoral standing. (Not offered 1968-69)

296 Seminar: Controllorship (3)

Kouzes

Advanced problems of financial management. (Not offered 1968-69)

297 Case Studies in Business Administration (3)

Jessup

Cases covering the whole range of business activity. Analysis of operational situations and policy issues. Developing and implementing solutions to managerial problems. (Fall and spring—day and evening)

298 Readings in Business (3)*(Formerly Business Administration 273)*

Supervised readings in selected fields within business administration. Admission by permission of instructor. May be repeated once for credit. (Fall and spring—evening; summer 1968)

299 Thesis Seminar (3)

Hartley

Examination of thesis standards, research philosophy and methodology. (Fall and spring—evening; summer 1968)

300 Thesis Research (3)

Staff

(Fall and spring—as arranged; summer 1968)

FOURTH GROUP**398 Advanced Reading and Research (arr.)**

Staff

Limited to students preparing for the Doctor of Business Administration general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Business Administration candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

BUSINESS AND PUBLIC ADMINISTRATION**THIRD GROUP****201 Advanced Administrative Management (3)**

Eastin, Brown

Advanced course in administration emphasizing principles and practices common to administrative units of all kinds. (Fall and spring—day and evening; summer 1968)

203 Mathematics for Management (3)

Bradley, Norton

Mathematical concepts employed in the solution of management problems. Applications of analytical geometry, functions, elements of calculus, and linear algebra to optimization problems. (Fall—day and evening; spring—evening; summer 1968)

204 Quantitative Factors in Administration (3)

Bradley, Norton

Survey of quantitative techniques used in the solution of management problems. Potentials and limitations of mathematical models and proper areas for their application. Topics include probability, statistical decision theory, linear programming, waiting line, inventory replacement models. Prerequisite: Business and Public Administration 203 or equivalent. (Fall and spring—day and evening; summer 1968)

207 Human Behavior in Organizations (3)

Lippitt, Pollock, Rizzo

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications emphasized. (Fall and spring—day and evening; summer 1968)

208 Current Issues in Organizational Behavior (3)

Lippitt, Rizzo

Study of behavioral factors relating to issues such as automation, ethics, labor-management relations, and similar problems. Problems in behav-

ioral science research. Prerequisite: Business and Public Administration 207. (Fall—day and evening; spring—evening)

209 Colloquium in Behavioral Sciences (3) Lippitt

Primarily for doctoral students. Supervised study in depth and field projects in the behavioral sciences. Prerequisite: Business and Public Administration 207 or permission of instructor. (Fall—evening)

210 Behavioral Factors in the Process of Change (3) Lippitt

Current research and theory related to the process of change. Basic principles of planned change; individual, group, organization, community, and cultural change. Human behavior research related to the change process emphasized. Prerequisite: Business and Public Administration 207 and 208. (Spring—evening)

211 Leadership and Executive Performance (3) Rizzo, Grub

Theories of managerial leadership; issues and problems associated with leadership in large organizations and at higher management levels; executive selection and development. Prerequisite: Business and Public Administration 201 or permission of instructor. (Spring—evening; summer 1968)

218 Survey of Data Processing (3) McCarthy, Wofsey, Demoody, Adams

Fundamentals of automatic data processing; manual, punched card, and electronic data processing principles and procedures; basic machine language and advanced language programming techniques; phases of data systems development; role of the manager in management information systems. Emphasis on proper use of data processing as another tool of management. (Fall and spring—day and evening; summer 1968)

219 Digital Computer Programming Concepts (3) Gordon, Allen

Programming concepts, techniques, and practices; FORTRAN and COBOL; address modifications, indexing, sub-routines, sub-programs, table look-up, machine functions, data representation, instruction formatting, and programming systems; government and business oriented problems. Student programs are run on the University 360 computer. Students will not become programmers, but will understand the use of programming in management information systems. Prerequisite: Business and Public Administration 218 or permission of instructor. (Fall and spring—evening)

220 Comparative Digital Computer Systems and Their Management (3) Tedder, Daly, Allen

Characteristics and capacities of the range of data processing equipment in use today, special purpose equipment in business and government, recent and prospective equipment developments. Fundamentals of data processing installation design and management. Prerequisite: Business and Public Administration 218 or 219, or permission of instructor. (Fall—day; spring—evening)

221 Management Information Systems Development and Application (3) McCarthy

Development of management information systems, integration of data processing in operations of government or business, impact on management organization and decision making. Case studies. Prerequisite: Business and Public Administration 218 or 219, or permission of instructor. (Fall—evening; spring—day and evening; summer 1968)

- 222 Seminar: Advanced Digital Computer Concepts (3)** Wofsey
Advanced problems in the design and application of computer systems. Admission by permission of instructor. (Fall and spring—evening)
- 223 Management of a Data Processing Organization (3)** Adams
Organization and management of data processing function in business and government; study of types of resources required: planning, scheduling, and production of data processing workloads; performance standards; evaluation criteria. Prerequisite: Business and Public Administration 218 and either 219 or 220; or permission of instructor. (Fall and spring—evening)
- 225-26 Statistics and Probability as Applied to Management Problems (3-3)** Norton
Probability and random variables, discrete and continuous distributions of one variable, sampling theory, estimation and hypothesis testing, statistical decision theory and revision of probabilities in decision making. Applications in business and government including waiting line theory, reliability, and replacement models. (Academic year—evening)
- 227 Mathematical Programming: Techniques and Applications (3)** Bracken
Technical and management considerations of linear and nonlinear programming. Mathematical and computational aspects of linear programming. Formulation of linear programming models. Studies of applications of linear programming. Introduction to theory and application of nonlinear programming. Prerequisite: Business and Public Administration 203. (Fall—evening)
- 228 Systems Analysis by Simulation (3)**
(Formerly *Applications of Operations Research*)
Methods of systems analysis via computer simulation. Particular attention to inventory models, although queuing systems and management planning models are also covered. Prerequisite: Business and Public Administration 225-26. (Not offered 1968-69)
- 229 Seminar: Management Science and Operations Research (3)** Bracken
(Formerly *Seminar: Operations Research*)
Supervised study in depth and advanced projects in management science and operations research. Prerequisite: Business and Public Administration 225-26, 227; or permission of instructor. (Spring—evening)
- 262 Seminar: Contemporary Administrative Theory (3)** Ericson
(Formerly *Contemporary Administrative Theory and Practice*)
Primarily for doctoral students. An overview of current and prospective theory and practice from an inter- and trans-disciplinary viewpoint. Topics addressed include: general systems theory, game theory, axiology and management values, antithetics, value engineering, cybernetic systems, decision theory, innovation and creativity models, and general semantics. (Fall and spring—evening)
- 263 Organization and Management (3)** Ericson
Contemporary management theory; emphasis on application of management concepts in organizational practice. Comparative studies of current

organizational designs and management processes. Prerequisite: Business and Public Administration 201, 204, 207. (Fall and spring—day and evening; summer 1968)

268 Management Engineering (3)

Clewlrow

Analysis of the techniques for initiation and implementation of management engineering programs; emphasis on organization and methods surveys including the study of work measurement, work simplification, management audits, and other management improvement programs. Not open to students who have taken former Business and Public Administration 269. (Fall and spring—evening)

287 Relations of Government to Business (3)

Timbers

Activities of government in relation to business management in areas of labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy. (Spring—evening; summer 1968)

290 Conferences: Government and Business Administration (arr.)

Lecture and conference series; distinguished visiting professors, speakers from government and business. (Fall or spring—as arranged)

295 Research Methods (3)

Research techniques, sources of information, array and analysis of data, interpretation and presentation of the findings. (Fall or spring—as arranged)

Chemistry*

Professors B.D. Van Evera, S.N. Wrenn, C.R. Naeser (*Chairman*), R.C. Vincent, R.E. Wood, T.P. Perros, W.E. Schmidt, D.G. White, J.B. Levy
Associate Professors Nicolae Filipescu, Bette Barton
Associate Professorial Lecturer Abraham Schwebel
Assistant Professors F.L. Minn, A.D. Britt, E.A. Caress, Claybourne Snead
Lecturers F.C. Edmundson, S.W. Fleisher, J.S. Griffo, C.R. Midkiff, Jr., Senta Rogers

Bachelor of Arts or Bachelor of Science with a major in Chemistry (Departmental).—The Department offers two undergraduate majors designed to give students broad training in the basic divisions of chemistry: analytical, inorganic, organic, and physical chemistry. *Major I* provides considerable concentration in chemistry. However, it permits a wider selection of electives, and thus should meet the needs of students preparing to enter medicine, dentistry, or related fields. *Major II* is intended primarily for students preparing for graduate study in chemistry or those planning to enter the chemical profession and wishing to be certified to the American Chemical Society as having met the minimum requirements for professional training. Both majors require the passing of the major examination at the end of the senior year. The correlated knowledge upon which the student will be examined includes the four divisions of chemistry named above. Two foreign languages are recommended for students planning to do graduate work in chemistry.

* Staff of Instruction for the academic year 1967-68.

Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Chemistry 11–12 and 22 or 15–16, 51–52, 53–54; Mathematics 22; Physics 1, 2 or 30, 51–52.

Major I—required: the general requirements, pages 74–78, including Chemistry 111, 112, 113, 114, 122, and 134.

Major II—required: the general requirements, pages 74–78, including the German language, all requirements of Major I, except Chemistry 134, plus Chemistry 135, 154 or 155, 235; Mathematics 23; an advanced laboratory course selected from Chemistry 155, 221, 156, 195, or one semester hour of Chemistry 135; and one course selected from Chemistry 195, 207, 213, 221 (if not elected previously), 222, 251, Mathematics 111, 139, Physics 163, 167–68, 175. The student is encouraged to take Mathematics 24 and Physics 31–32 in preparation for advanced courses and graduate work. These courses are essential to graduate work in theoretical chemistry.

Master of Science in the field of Chemistry.—**Prerequisite:** a Bachelor's degree with a major in Chemistry from this University, or equivalent.

Required: the general requirements, pages 83–87. The required thirty semester hours of graduate work must include Chemistry 213 and 221, and at least two of the following: Chemistry 207, 236, and 251. In each of these five courses, a qualifying examination is given during the first week of classes; these examinations are part of the prerequisite for these and other advanced courses. Deficiencies, if any, shall be eliminated by assignment to appropriate second-group courses for which a limited amount of graduate credit may, upon petition, be granted for courses normally taken by seniors. In addition to the above, Chemistry 193, 299–300, and at least four semester hours of advanced laboratory work are also required. Courses which may be taken to satisfy this laboratory requirement are Chemistry 221 and 222 (three semester hours), 135, 136, 155, and 156; a maximum of two semester hours of Chemistry 295 may also be applied to the laboratory requirement. Chemistry 156 is prerequisite to Master's thesis work in the field of organic chemistry. All graduate students are required to participate in the seminar program (Chemistry 291) and colloquium program. A reading knowledge examination in French, German, or Russian (German or Russian preferred) must be passed before the second half of the work is started. A student who intends to become a doctoral candidate is strongly urged to take Chemistry 207 as early as possible in his graduate program.

Master of Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Chemistry and Geology).—**Prerequisite:** a Bachelor's degree with a major in Chemistry or in Geology from this University, or equivalent.

Required: the general requirements, pages 83–87, including Chemistry 111, 112; Geology 141, 241, 249; and Chemistry 213 or Geology 245. The Master's Comprehensive Examination must be taken before registration for the second half of the thesis work. A reading knowledge examination in a foreign language, approved by the Department of Chemistry or Geology, must be passed before the second half of the work is started.

Doctor of Philosophy fields of study in Chemistry: Analytical Chemistry, Chemistry of Natural Products, Inorganic Chemistry, Organic Chemistry, Physical Chemistry (Electrochemistry, Kinetics, Magnetic Resonance, Solubilities, Theoretical), and Physical Organic Chemistry (Reaction Mechanisms).—See pages 83–85, 87–88, for requirements for the degree. Cumulative examinations replace the "General Examination" requirement.

Doctor of Philosophy field of study in Geochemistry (an interdepartmental field offered by the departments of Chemistry and Geology).—See pages 83–85, 87–88, for requirements for the degree.

Bachelor of Arts in Education with a teaching field in Chemistry.—**Prerequisite:** the Education curriculum, pages 71–72.

Required: the Chemistry option and professional courses listed on pages 97, 105.

Registration: before completing registration each student must obtain from the representative of the Department an assignment to lecture, recitation, and laboratory sections. The work of the junior and senior years must be approved by the Department.

FIRST GROUP

3-4 Fundamentals of Physical Science (4-4)

Van Evera, Barton

A year course: credit toward a degree at this University given on completion of Chemistry 4. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester. (Academic year—day)

11-12 General Chemistry (4-4)

Staff

A year course: credit toward a degree at this University given on completion of Chemistry 12. Lecture (3 hours), laboratory (3 hours), recitation (1 hour). Elementary course in general chemistry, including qualitative analysis. Prerequisite: one year of high school algebra. Laboratory fee, \$18 a semester. (Academic year—day and evening; summer 1968)

15-16 Intensive General and Analytical Chemistry (Honors Course) (4-4)

Minn

First half: lecture (3 hours), laboratory (3 hours), recitation (1 hour). *Second half:* lecture (2 hours), laboratory (6 hours), recitation (1 hour). Equivalent to Chemistry 11-12 and 22, but with selected topics studied in depth. Prerequisite to Chemistry 15: high school physics and chemistry. Prerequisite to Chemistry 16: Chemistry 15. Admission by placement test prior to registration or on basis of College Board Advanced Placement Examination. Laboratory fee, \$13 a semester. (Academic year—day)

22 Elementary Quantitative Analysis (4)

Vincent

Lecture (2 hours), laboratory (6 hours). Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 12. Laboratory fee, \$18. (Offered every year: fall and spring—day; 1969-70 and alternate years: spring—evening; summer 1968)

50 Introduction to Organic Chemistry (4)

Caress

Lecture (3 hours), laboratory (3 hours). A terminal course for students in related disciplines. This course does not fulfill the organic chemistry requirement for chemistry majors or premedical students. Prerequisite: Chemistry 12 or 16. Laboratory fee, \$12. (Fall—day)

51-52 Organic Chemistry (3-3)

Levy, Caress

A year course: credit toward a degree at this University given on completion of Chemistry 52. Chemistry of the compounds of carbon. Prerequisite: Chemistry 12 or 16. (Academic year—day and evening; summer 1968—Chemistry 51-52 (4-5))

53-54 Organic Chemistry Laboratory (1-1)

Staff

Laboratory complement of Chemistry 51-52. Prerequisite or concurrent registration: Chemistry 51-52. Prerequisite to Chemistry 54: Chemistry 53. Laboratory fee, \$12 a semester. (Academic year—day and evening)

SECOND GROUP

111-12 Physical Chemistry (3-3)

Wood

Gas Laws, chemical thermodynamics, solution chemistry, chemical equilibrium, kinetics, chemical statistics, electrochemistry, and other topics. Prerequisite to Chemistry 111: Chemistry 16 or 22; Mathematics 22; Physics 2 or 30. Prerequisite to Chemistry 112: Chemistry 111. (Offered every year: academic year—day; 1969-70 and alternate years: academic year—evening; summer 1968)

113 Physicochemical Measurements (2)

Minn

(Formerly Physical Chemistry Laboratory)

Laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 required. Laboratory fee, \$18. (Fall—day and evening)

114 Physicochemical Measurements (2)

Schmidt, Minn

(Formerly Chemistry 116 Physicochemical Measurements (3))

Integrated laboratory work associated with Chemistry 112 and 122: principles and applications of physicochemical methods and instruments to problems in chemical thermodynamics and kinetics and in structural and analytical chemistry. Prerequisite: Chemistry 111, 113. Prerequisite or concurrent registration: Chemistry 112, 122. Laboratory fee, \$18. (Spring—day and evening)

122 Instrumental Analysis Lectures (2)

Schmidt

Theory of instrumental methods in qualitative and quantitative analysis, determination of structure, and study of reaction mechanisms with emphasis on electroanalysis, spectrophotometry, and chromatography. Correlated with Chemistry 114. Prerequisite or concurrent registration: Chemistry 112. (Spring—day and evening)

134 Descriptive Inorganic Chemistry (3)

Naeser

Intermediate level course emphasizing the descriptive chemistry of the elements. Prerequisite: Chemistry 16 or 22, 52. Prerequisite or concurrent registration: Chemistry 111. (Fall—day)

135-36 Inorganic Chemistry: Preparations (1 or 2-2)

Perros

Application of the technique of inorganic chemistry to the preparation and purification of a list of selected substances. Prerequisite: Chemistry 52. Prerequisite or concurrent registration: Chemistry 134 or 235. Laboratory fee, \$18 a semester. (First half: fall—evening; spring—day. Second half: fall—evening.)

154 Special Laboratory in Organic Chemistry (1)

Wrenn

(Formerly Chemistry 153)

Designed to give the chemistry major additional and broader training in the technique of organic chemistry than is obtained in Chemistry 53-54. Prerequisite or concurrent registration: Chemistry 54. Laboratory fee, \$12. (Chemistry 155 may be substituted for this course.) (Spring—day and evening)

155 Organic Chemistry: Preparations (2 or 3)

Wrenn

Synthesis of organic compounds and application of the technique of organic chemistry to the preparation of pure compounds, using larger amounts and greater refinements than in Chemistry 51-52. Prerequisite:

Chemistry 16 or 22, 52. Laboratory fee, \$10.50 a semester hour.
(Spring—evening)

156 Qualitative Organic Analysis (3)

Wrenn

Lecture (1 hour), laboratory (6 hours). Identification of pure organic compounds, separation of mixtures, and identification of their components. Required of all students planning thesis work in organic chemistry. Prerequisite: Chemistry 16 or 22, 52. Laboratory fee, \$18. (Fall—evening)

191 History of Chemistry (2)

Perros

Historical development of chemistry. Prerequisite: Chemistry 16 or 22, 52. (1969-70 and alternate years)

193 Chemical Literature (1)

Wrenn

A general course; reference work and reports. Prerequisite: Chemistry 16 or 22, 52. Prerequisite or concurrent registration: Chemistry 111. (Fall—evening)

195 Undergraduate Research (arr.)

Staff

Research on problems approved by the Staff. May be repeated once for credit. Laboratory fee, \$7.50 a semester hour. (Fall and spring—as arranged)

THIRD GROUP

203 Chemical Kinetics (2)

Levy

Rates of chemical reactions and factors influencing them. Prerequisite: Chemistry 52, 112. (1969-70 and alternate years)

207 Chemical Bonding (3)

Barton

Application of quantum mechanics to modern chemical problems, emphasis on molecular orbital and valence bond approximations; group theory. Prerequisite: consent of instructor. (Fall—evening)

211-12 Physical Chemistry (2-1)

Wood

Same as Chemistry 111-12. Admission only by departmental permission. Credit assigned upon satisfactory completion of Chemistry 213. (Offered every year: academic year—day; 1969-70 and alternate years: academic year—evening; summer 1968)

213 Chemical Thermodynamics (3)

Wood

Application of thermodynamics to chemical problems. Thermochemistry, homogeneous and heterogeneous equilibria, statistical calculation of thermodynamic properties, electrochemistry. Prerequisite: grade of A or B in Chemistry 111-12 or in 211-12 or qualifying grade in physical chemistry qualifying examination. (Fall—day)

214 Principles of Magnetic Resonance (3)

Barton

Application of magnetic resonance to chemical problems, emphasis on the close connection between theory and experiment. Reaction rates, bonding, electron densities, etc. Prerequisite: Chemistry 207 or permission of instructor. (1968-69 and alternate years: spring—evening)

215 Quantum Chemistry (3)

Minn

Postulates of quantum mechanics, exactly solvable systems, variation and perturbation approximations, atomic and molecular structure and spectra.

the chemical bond. Prerequisite: Chemistry 207 or permission of instructor. (1969-70 and alternate years)

216 Statistical Mechanics as Applied to Chemistry (3)

Barton

Introduction to classical and quantum statistics designed to acquaint the student with basic principles and application of method. Prerequisite or concurrent registration: Chemistry 207 or permission of instructor. (1969-70 and alternate years)

219 Spectrochemistry (3)

Filipescu

Energetic states of molecules under the influence of electromagnetic radiation and their relation to structures and spectroscopic properties. Prerequisite: Chemistry 207 and 221, or permission of instructor. (1969-70 and alternate years)

***221 Advanced Analytical Chemistry I (3)**

Britt

Lecture (2 hours), laboratory (3 hours). Theory and application of recent spectrometric methods of analysis, including electrical, magnetic, and optical instrumentation. Prerequisite: Chemistry 122 and qualifying examination. (Spring-evening)

***222 Advanced Analytical Chemistry II (2 or 3)**

Schmidt

Lecture (2 hours), laboratory (3 hours—optional). Theory and application of electroanalysis and separations by physicochemical methods. Prerequisite: Chemistry 122 and qualifying examination. Laboratory fee, \$7.50. (1969-70 and alternate years)

231 Coordination Chemistry (2)

Perros

Selected topics including application of ligand field theory and molecular orbital theory to transition metal complexes, determination of stability constants, and methods for the synthesis of representative coordination compounds. Prerequisite: Chemistry 236. (1969-70 and alternate years)

232 The Lanthanide and Actinide Elements (2)

Perros

Comprehensive review of the physical and chemical properties of the lanthanide and actinide elements; particular emphasis on the more recent developments. Prerequisite: Chemistry 236. (1968-69 and alternate years: spring-evening)

233 Organometallic Chemistry (3)

White

Survey of organometallic compounds, emphasis on the organo derivatives of boron, aluminum, and silicon; "sandwich" compounds and the olefin and acetylene complexes of transition metals. Prerequisite: Chemistry 236 and 252, or permission of instructor. (1968-69 and alternate years: fall-evening)

234 Radiochemistry (2)

Schwebel

Preparation, properties, and uses of radioactive isotopes, both natural and artificial. Prerequisite: Chemistry 235-36. (1968-69 and alternate years: fall-evening)

***235-36 Advanced Inorganic Chemistry (3-3)**

White

Application of modern chemical theories to inorganic substances and reactions followed by a detailed study, developed from the periodic table, of the chemistry of the more common elements. Prerequisite: Chemistry

* The appropriate qualifying examination is prerequisite to all "advanced" courses.

52, 112, 116, and qualifying examination in inorganic chemistry. Prerequisite to Chemistry 236: Chemistry 235. (Academic year—evening)

***251-52 Advanced Organic Chemistry (3-3) Filipescu**

Synthesis, reactions, and properties of organic compounds; fundamental theories of organic chemistry, emphasis on reaction mechanisms. Prerequisite: Chemistry 52, 112, and qualifying examination in organic chemistry. Prerequisite to Chemistry 252: Chemistry 251. (Academic year—evening)

***253 Advanced Synthetic Organic Chemistry (3) Wrenn**

Study of reactions employed in the synthesis of organic compounds. Prerequisite: Chemistry 251. (Spring—evening)

257 Physical Organic Chemistry (2) Levy

Physical aspects of the reactions of organic compounds; effects of structure and medium on reactivity. Prerequisite: Chemistry 252 or permission of instructor. (1968-69 and alternate years: spring—evening)

258 Natural Products (2) Caress

Methods of structure determination and synthesis of naturally occurring compounds; some aspects of the chemistry of terpenes, steroids, alkaloids, etc. Prerequisite: Chemistry 251-52 or consent of instructor. (1968-69 and alternate years: spring—evening)

259 Polymer Chemistry (3) Filipescu

Preparation, properties, and structure of macromolecules. Prerequisite: Chemistry 52, 112. (1970-71 and alternate years)

291 Seminar: Recent Developments in Chemistry (0) Staff

All graduate students are required to participate in this seminar throughout their period of residence in the Department. No academic credit. No tuition fee required. (Fall and spring—day)

295 Research (arr.) Staff

Research on problems approved by the Staff. Open to qualified students with advanced training. May be repeated once for credit. Laboratory fee, \$7.50 a semester hour. (Fall and spring—as arranged; summer 1968)

299-300 Thesis Research (3-3) Staff

Laboratory fee, \$18 a semester. (Academic year—as arranged; summer 1968)

FOURTH GROUP

398 Advanced Reading and Research (arr.) Staff

Limited to students preparing for the Doctor of Philosophy cumulative examinations. May be repeated for credit. (Fall and spring—as arranged)

399 Dissertation Research (arr.) Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged)

*The appropriate qualifying examination is prerequisite to all "advanced" courses.

Chinese

See "Slavic and Oriental Languages and Literatures."

Classics*

Professor J.F. Latimer (Chairman)

Professorial Lecturer R.W. Tucker

Associate Professorial Lecturer A.B. Seidman

Assistant Professor J.E. Ziolkowski

Assistant Professorial Lecturers Mary Norton, Mary Nutting

Bachelor of Arts with a major in Latin (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including History 39–40.

Required: in addition to the general requirements, pages 74–78, twenty semester hours in Latin beyond first-group courses including Latin 131–32, Art 111, Philosophy 111. A reading knowledge of French or German, preferably both, is recommended.

Bachelor of Arts with a major in Classical Archeology and Greek (Departmental).—This interdepartmental major may be arranged in conjunction with the Department of Art. Prerequisite: the Arts and Letters curriculum, page 69, Greek 13–14 and History 39–40.

Required: in addition to the requirements, pages 74–78, twelve semester hours of second-group courses in Greek; Anthropology 183; Art 101, 102, 103, 111; History 109; Philosophy 111. A reading knowledge of French or German, preferably both, is strongly recommended.

Latin 1–2 and 3–4, or Greek 11–12 and 13–14 satisfy the foreign language requirements (See page 68). For students entering with two years of high school Latin, Latin 3–4 will satisfy the requirement.

LATIN AND GREEK

FIRST GROUP

1–2 First-year Latin (3–3)

Nutting and Staff

A year course: credit toward a degree at this University given on completion of Latin 2. Functional presentation of the essentials of the language, appropriate reading selections, development of English derivatives, introduction to Roman life and literature. (Academic year—day; summer 1968)

3–4 Second-year Latin (3–3)

Norton

A year course: credit toward a degree at this University given on completion of Latin 4. Continuation of Latin 1–2; emphasis on Latin readings that illustrate Roman life and literature. Prerequisite: Latin 1–2 or two years of high school Latin. (Academic year—day)

11–12 First-year Greek (3–3)

Ziolkowski

A year course: credit toward a degree at this University given on completion of Greek 12. Essentials of grammar; appropriate reading selections. Text used varies between Attic and Homeric Greek. (Academic year—day)

* Staff of Instruction for the academic year 1967–68.

13-14 Second-year Greek (3-3)

Latimer

A year course: credit toward a degree at this University given on completion of Greek 14. Review of grammar; rapid reading from selected Greek authors. Prerequisite: Greek 12. (Academic year—day)

SECOND GROUP**101-2 Introduction to Latin Literature (3-3)**

Norton

Selections from a wide variety of Latin authors of prose and poetry. Prerequisite: Latin 3-4 or equivalent. (Academic year—day)

103 Roman Comedy (3)

Ziolkowski

Selected plays from Plautus and Terence. Prerequisite: Latin 101-2 or permission of instructor. (Fall—day)

111 Roman Historians (3)

Staff

Selections from Sallust, Livy, and Tacitus. Prerequisite: Latin 101-2 or permission of instructor. (Not offered 1968-69)

112 Roman Philosophical Writings (3)

Selections from Lucretius, Cicero, Seneca. Prerequisite: Latin 101-2 or permission of instructor. (Not offered 1968-69)

116 Vergil's Eclogues and Georgics (3)

Staff

Appropriate selections for rapid reading. Prerequisite: Latin 101-2 or permission of instructor. (Not offered 1968-69)

121 Latin Lyric Poetry (3)

Staff

Selections from Catullus and Horace. Prerequisite: Latin 101-2. (Not offered 1968-69)

122 Roman Satire (3)

Ziolkowski

Selections from Horace, Juvenal, and Martial. Prerequisite: Latin 101-2 or permission of instructor. (Spring—day)

129-30 Roman Epic (3-3)

Staff

Selections from Vergil's *Aeneid* and Ovid's *Metamorphoses*. Admission by permission of instructor. (Not offered 1968-69)

131-32 Latin Prose Composition (1-1)

Exercises in Latin prose composition for Latin majors. Other students may enroll by permission of instructor. (As arranged)

133-34 Medieval Latin Literature and Texts (3-3)

Andrews

Wide variety of selections in prose and poetry for rapid reading. Prerequisite: Latin 101-2 or permission of instructor. May be taken for graduate credit with permission of instructor. (Not offered 1968-69)

135-36 Survey of Latin Literature (3-3)

Staff

Latin literature in historical sequence. For Latin majors. Other students may enroll by permission of instructor. (As arranged)

139-40 Readings in Greek Literature (3-3)

Staff

Selections from a wide variety of Greek prose, drama, and poetry, suited to the needs of the class. May be repeated for credit with permission of instructor. (As arranged)

COURSES IN ENGLISH TRANSLATION

FIRST GROUP

- 71 **Greek and Roman Epic** (3) Ziolkowski and Staff
 Selections from Homer, Hesiod, Apollonius, Vergil, Ovid, Lucretius, and
 Lucan. (Spring—day)
- 72 **Greek and Roman Literature** (3) Ziolkowski and Staff
 Selections from Greek drama, history, and philosophy. (Fall—day)

SECOND GROUP

- 113 **Greek and Roman Drama** (3) Norton
 Selected masterpieces of Greek and Roman tragedy and comedy.
 (Fall—day; spring—evening; summer 1968)
- 124 **Latin and Greek in Current Use** (2 or 3) Tucker
 Vocabulary building. Derivation and formation of English words stem-
 ming from Greek and Latin. (Fall—day; spring—evening)

CLASSICAL HEBREW

Classical Hebrew does not satisfy the foreign language requirement for Columbian College of Arts and Sciences, see page 68.

FIRST GROUP

- 21-22 **First-year Classical Hebrew** (3-3) Seidman
 A year course: credit toward a degree at this University given on comple-
 tion of Hebrew 22. Fundamental principles of the language; practice in
 reading simple narrative prose. (Not offered 1968-69)
- 23-24 **Second-year Classical Hebrew** (3-3) Seidman
 A year course: credit toward a degree at this University given on comple-
 tion of Hebrew 24. Review of grammar and exegesis of passages from
 the Hebrew text of the Old Testament. (Academic year—day)

Economics*

Professors A.E. Burns, D.S. Watson, T.W. Holland (*Emeritus*), J.W. Kendrick,
 C.T. Stewart, Jr., C.E. Galbreath (*Chairman*), Joseph Aschheim, R.P.
 Sharkey, T.F. Carroll (*Visiting*), C.H. Danhof, J.L. Knetsch, Henry Solomon,
 G.L. Mangum (*Research*), Sar Levitan (*Research*), Selma Mushkin (*Re-
 search*)

Professorial Lecturers John Hardt, S.I. Katz, Murray Ross, Joel Popkin, G.C.
 Taylor

Associate Professors Mary Holman, Ching-Yao Hsieh, R.Y. Yin

Associate Professorial Lecturers S.E. Haber, R.M. Field, D.J. Edwards, Lau-
 rence Rosenberg

* Staff of Instruction for the academic year 1967-68.

Assistant Professors W.F.E. Long, Henry Peskin, R.W. Rafuse, Jr., B.C. Field
 Assistant Professorial Lecturers J.M. Howell, J.N. Ellison, Robert Curry, Jr.,
 C.S. Tsao, S.A. Hoenack, R.M. Dunn, Jr., D.A. Walker
 Instructor Margaret Reuss
 Lecturer J.L. Voss

Bachelor of Arts with a major in Economics (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Economics 1-2 and Statistics 51. A college-level course in calculus is strongly recommended.

Required: the general requirements, pages 74-78, and (1) Economics 101, 102 (to be completed no later than the junior year), and 198; (2) Economics 121 and 122, or 161 and 162, or 181-82; (3) twelve additional hours of second-group Economics courses, including Economics 121 if not previously elected, to be selected with the approval of the adviser; (4) Statistics 111 and 112, or equivalent.

Bachelor of Arts with a major in Latin American Studies (Field-of-Study).—See Department of History.

Master of Arts in the field of Economics.—Prerequisite: the degree of Bachelor of Arts with a major in Economics at this University, or equivalent.

Required: the general requirements, pages 83-87, including (1) Economics 203-4, 205, 210; (2) twelve additional semester hours to be selected from other third-group Economics courses; and (3) a thesis (Economics 299-300).

Master of Arts in the field of Latin American Studies.—See Department of History.

Doctor of Philosophy fields of study in Economics: Econometrics, Economic Development, Economic History, Economic Policy, Economic Theory, History of Economic Thought, Industrial Organization, International Economics, Labor Economics, Mathematical Economics, Monetary Economics, National Income Accounting, Natural Resources Economics, Public Finance, Regional Economics, and Soviet Economics.—See pages 83-85, 87-88, for requirements for the degree.

Bachelor of Arts with a major in International Affairs.—See page 345.

Bachelor of Arts with a major in Public Affairs (Economics Option).—See page 345.

Master of Arts in the field of International Affairs.—See page 346.

Master of Arts in the field of Public Affairs with a specialization in Domestic Economics.—See page 346.

Departmental prerequisite: Economics 1-2 is prerequisite to all other courses in Economics.

FIRST GROUP

1-2 Principles of Economics (3-3)

Staff

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (First half: fall and spring—day and evening; summer 1968. Second half: fall—evening; spring—day and evening; summer 1968.)

SECOND GROUP

101 Intermediate Microeconomic Theory (3)

Long, Yin, Tsao

Analysis of supply, demand, and pricing. (Fall—day and evening; summer 1968)

102 Intermediate Macroeconomic Theory (3)

Holman, Long

Theories of national income determination and growth. (Spring—day and evening; summer 1968)

104 History of Economic Thought (3)

Hsieh

History of the major schools of economic thought, influence of changing problems on the development of economic theory. (Fall and spring—day)

121 Money and Banking (3)

Reuss

Nature of money, credit, commercial banking, and other financial institutions in the U.S. monetary system. (Fall—day and evening; summer 1968)

122 Monetary Theory and Policy (3)

Long

(Formerly *Money and Banking*)

Analysis of role of money in economic activity in terms of supply of and demand for loanable funds, determination of interest rates and price level. Problems of U.S. monetary policy. Prerequisite: Economics 121. (Spring—day)

133 Economy of the Soviet Union (3)

Hardt

Development and main features of economic life in the Soviet Union. (Fall—day)

134 Comparative Communist Economic Systems (3)

Hardt

Analysis of economic development and performance of the Soviet Union and other Soviet-type economies. Institutional aspects and quantitative measures of performance. (Spring—day)

142 Labor Economics (3)

Haber

Characteristics of American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs. (Fall and spring—day)

*** 147 Economic History of Europe (3)**

Sharkey

European economic development since the Middle Ages; emphasis on the period following the Industrial Revolution. Evolution of capitalism and its impact upon the societies of Europe. (Spring—day; summer 1968)

161 Public Finance I (3)

Rafuse

Theoretical and institutional analysis of government expenditures, taxation, and intergovernmental fiscal relations. (Fall—day)

162 Public Finance II (3)

Rafuse

Theoretical and institutional analysis of fiscal policy and debt management. (Spring—day)

165 Government and Business (3)

Stewart

Survey of economic policies in the United States, economic philosophies, antitrust and other areas of regulation. (Fall—day)

169 Introduction to the Economy of Communist China (3)

Yin

Background, organization, and operation of the economy. Appraisal of performance and analysis of problems of development. (Fall—day)

* Interdepartmental course offered by departments of Economics and History. Students register in either department.

***179-80 U.S. Economic History (3-3)**

Danhof, Sharkey

Process of economic growth from Colonial times to the present. Development of various sectors in the economy—such as agriculture, transportation, manufacturing, and banking—and their interdependence. *First half:* 1607-1865. *Second half:* 1865 to present. (Academic year—evening)

181-82 International Economics (3-3)

Aschheim, Galbreath, Edwards

First half: fundamentals of the monetary theory and pure theory of international trade. *Second half:* analysis of major contemporary problems including balance of payments, international liquidity, and economic development. (Academic year—day and evening; summer 1968)

185-86 Economic History and Problems of Latin America (3-3)

Howell

Analysis of present structures and problems of Latin American economies. (Academic year—evening)

195 Governmental and Industrial Economics (3)

Ellison

Limited to students in the Navy Graduate Financial Management Program. (Fall—as arranged; summer 1968)

198 Proseminar in Economics (3)

Solomon

Examination of major topics in economic theory and the application of theory and analysis to policy problems. Emphasis on directed individual research which combines theoretical and empirical analysis. Open only to economics majors in their senior year. (Fall and spring—as arranged)

199 Independent Research in Economics (3)

Staff

Under the personal direction of an instructor. Limited to economics majors with demonstrated capacity. Prior approval of instructor required. (Fall and spring—as arranged)

THIRD GROUP**201-2 History of Economic Thought (3-3)**

Burns, Hsieh

Critical analysis and interpretation of the development of economic theory from Aristotle through the 19th century. (Academic year—evening)

203-4 Microeconomic Theory (3-3)

Watson

First half: theories of the consumer and of the firm. *Second half:* theories of markets. (First half: fall—day and evening. Second half: spring—evening.)

205 Macroeconomic Theory (3)

Kendrick, Peskin

Classical, Keynesian, and modern theories of income determination and employment. (Fall and spring—evening)

207 Business Cycle Analysis (3)

Kendrick

Empirical analysis of American business cycles; evaluation of the methodology and findings of the National Bureau of Economic Research. Statistical tests of theories of the business cycle. (Spring—evening)

* Interdepartmental course offered by departments of Economics and History. Students register in either department.

- 208 National Income (3)** Kendrick
Theory and measurement of economic aggregates within an integrated national income accounts framework including balance sheets and wealth statements. (Spring—evening)
- 210 Seminar in Economics (3)** Stewart
Methodology of economics, review of contemporary macroeconomics and microeconomics both in their positive and normative aspects. Open only to students who have completed 15 hours of graduate work in economics. (Fall and spring—evening)
- 215-16 Mathematical Economics (3-3)** Solomon
Formulation and application of mathematical models in economic theory. Includes applications of the calculus, differential and difference equations, matrix theory, mathematical programming, and probability theory. Prerequisite: Economics 203-4 and 205, and a one-year calculus sequence. (Academic year—evening)
- 217-18 Survey of Economics (3-3)** Watson, Holman
For graduate students in fields other than economics. *First half*: price theory. *Second half*: income and employment theory. Not open to graduate students in economics. (Academic year—evening; summer 1968—Economics 217)
- 223-24 Monetary Theory and Policy (3-3)** Aschheim
Theory of monetary policy within the framework of contemporary American central banking. (Academic year—evening)
- 233-34 Seminar: Land Policy Problems in Latin America (3-3)** Carroll
Analysis of current issues of land and water resource problems and policies related to economic development in Latin American countries, and evaluation of programs and projects supported by international assistance. (Academic year—evening)
- 237 Seminar: Economics of Natural Resources Policy (3)** Taylor
Analysis of public policy problems relating to natural resources development and management. Specific topics include public investment criteria, time discounting problems, regional analysis, and project evaluation. (Fall—evening)
- 238 Research Seminar: Natural Resources Economics (3)** B. Field
Discussion of student research projects; particular attention to the role of hypothesis, data adequacy, evaluatory criteria, testing procedures, and interpretation. (Spring—evening)
- 241-42 Labor Economics (3-3)** Holland, Levitan, Mangum
Analysis of labor markets, theories of wages, impact of collective bargaining, causes of unemployment, public policies and programs. (Academic year—evening)
- 243 Seminar: Manpower Policy (3)** Levitan, Mangum
Developments leading to expansion of public investment in manpower resources; evaluation of goals and operations of publicly supported programs; role of federal, state, and local governments and private institutions. (Fall and spring—evening)

- 251-52 Economic Development (3-3)** **Ross**
Theories and problems of economic growth; special attention to the underdeveloped countries. (Academic year—evening)
- 253 Productivity Analysis (3)** **Kendrick**
Concepts, measurement, and analysis of productivity in business and government at aggregate and organizational levels. (Fall—evening)
- 261 Welfare Economics (3)** **Stewart**
Theories of welfare economics and their applications to public policy; analysis of selected topics in public policy. (Fall—evening)
- 263 Theory of Public Finance I (3)** **Rafuse**
(Formerly *Public Finance Theory and Policy*)
Allocation and distribution aspects of government budget policy including critical analysis of theories and principles of expenditures, taxation, and intergovernmental fiscal relations. (Fall—evening)
- 264 Theory of Public Finance II (3)** **Rafuse**
(Formerly *Public Finance Theory and Policy*)
Stabilization aspects of government budget policy: analysis of effects of fiscal policy and debt management on level of employment, prices, and rate of economic growth. (Spring—evening)
- 265 Economics of Regulatory Policy (3)** **Staff**
Analysis of economic impact of government regulatory policies and practices. (Not offered 1968-69)
- 266 Antitrust Policy (3)** **Rosenberg**
Historical background; economics of monopoly, impact of antitrust legislation and policy. (Spring—evening)
- 267 Seminar: Soviet Economy (3)** **Hardt**
Development of the Soviet-type economy. Organization, policies, and problems: monetary, fiscal, production, allocative, foreign trade, economic growth. Workshop: case studies on sectoral or problem areas. Prerequisite: graduate status; Economics 101, 102, 133, and 134, or equivalent; permission of instructor. (Fall—evening)
- 268 Seminar: Economic Theory and Development in Communist Countries (3)** **Hardt**
Appraisal of the Soviet-type model for economic development in the institutional framework of Soviet and other communist processes of economic development. Workshop: case studies on Eastern Europe, Chinese and other communist economies. Prerequisite: graduate status; Economics 101, 102, 133, and 134, or equivalent; permission of instructor. (Spring—evening)
- 269 Economy of Communist China I (3)** **Yin, R. Field**
Analysis of organization, operation, policies, and problems. Development of the economy under communism. (Fall—evening)
- 270 Economy of Communist China II (3)** **Yin, R. Field**
Continuation of Economics 269, examining critical problems of development. Prerequisite: Economics 269 or permission of instructor. (Spring—evening)

***275 Econometrics I: Introduction (3)**

Peskin, Popkin

Survey of applications and introduction to statistical methods for estimating economic relationships for the economist with some mathematical facility. Prerequisite: one year of elementary statistics and Economics 203-4 and 205, or equivalent as approved by instructor. (Fall—evening)

***276 Econometrics II: Theory and Method (3)**

Hoenack

Continuation of Economics 275; emphasis on errors in variables, confidence, nonspherical disturbances, identification, and multi-equation estimation. Prerequisite: Economics 275. Recommended: a course in matrix theory. (Spring—evening)

281-82 International Economics (3-3)

Katz

First half: theory of international trade and factor movements. *Second half:* theory of balance-of-payments adjustment. (Academic year—evening)

285-86 Economic Development of Latin America (3-3)

Staff

Current policies and programs, capital formation, public and private; foreign loans and investment; social and technological preconditions of investment. (Not offered 1968-69)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

FOURTH GROUP

Fourth-group Economics courses are limited to graduate students, but they are primarily for doctoral candidates. They are offered as the demand requires.

312 Seminar: Price Theory (3)

Watson

Discussion of topics of price theory from recent journal articles.

313 Seminar: Economic Thought in the 20th Century (3)

Burns

Continuation of Economics 201-2. Principal trends in English, Continental, and American economic thought during the present century.

315 Seminar: Topics in Mathematical Economics (3)

Solomon

Intensive study of selected topics including economic activity analysis, risk and uncertainty, and other topics of current interest. Prerequisite: Economics 215-16.

321 Seminar: Monetary Theory (3)

Aschheim

Recent developments in monetary theory.

341 Seminar: Labor Economics (3)

Staff

Current problems in theory and policy.

363 Seminar: Public Finance (3)

Staff

Selected topics of current interest.

***378 Seminar: Topics in Econometrics (3)**

Peskin

A research seminar covering current econometric literature. Prerequisite: Economics 276. (As arranged)

* Interdepartmental course offered by the departments of Economics and Statistics. Students may register in either department.

- *379-80 Readings in Economic History (3-3)** Sharkey
Prerequisite: the appropriate second-group preparation and consent of instructor. (Academic year—evening)
- 390 Seminar: International Economic Theory (3)** Staff
Examination of recent contributions in this field.
- 391 Seminar: International Economic Policy (3)** Staff
Topics selected from current significant policy problems.
- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 Dissertation Research (arr.)** Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Education†

Professors B.S. Root (*Chairman*), G.L. Angel, W.T. Carroll, Carol St. Cyr, J.T. Dailey (*Research*), Mary Coleman, H.G. Detwiler, Daniel Sinick, R.E. Baker, Martha Rashid

Professorial Lecturers Anthony Marinaccio, J.B. Holden, J.P. Walsh, J.C. Lang, Ruth Newman, W.W. Chase, W.E. Amos, C.E. Bish

Associate Professors R.W. Eller, Leonard Nadler, C.O. McDaniels, Marcella Brenner, J.S. Aven (*Research*), J.G. Boswell, Margaret McIntyre

Associate Professorial Lecturers LuVerne Walker, Beverly Crump, Helen Mitchell, Nicholas Long, Martha Ware, H.W. Houghton, S.R. Westerlund, Irene Hypps, Sylvia Gerber, P.E. Arsenault, C.E. Minich

Assistant Professors R.L. Williams, Gloria Horrworth, C.A. Neyman, Jr. (*Research*), Margaret Kiley, Ruth Peterson, Clarke Trundle, Carla Heymsfeld, Donald Linkowski, Dorothy Moore, Lawrence Winkler

Assistant Professorial Lecturers R.J. Kubalak, Shirley McCune, David Iwamoto, J.D. Gates, Marjorie Daly, Marianne Phelps, D.M. Ehat, Abbie Smith, E.S. Beach, Jr.

Instructor Miriam Jaegerman

Bachelor of Arts in Education.—Prerequisite: the Education curriculum, pages 71-72, or equivalent, or a certificate of graduation from an approved normal school or equivalent.

Required: the satisfactory completion of a program of at least sixty-six semester hours in addition to the general education background courses, pages 71-72. Each program is planned individually to meet the certification requirements of the student, see pages 93-106.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Education majors.

Master of Arts in Education.—Prerequisite: a Bachelor's degree from an accredited institution. Programs are planned individually (see pages 107-10).

* Interdepartmental course offered by the departments of Economics and History. Students register in either department.

† Staff of Instruction for the academic year 1967-68.

American Thought and Civilization 101 *American Civilization* is available for graduate credit.

Master of Arts in Teaching.—Prerequisite: a Bachelor's degree in a liberal arts program from an accredited institution, see pages 114–15.

Education Specialist.—See pages 110–11.

Doctor of Education.—See pages 111–14.

SECOND GROUP

- 107 Elementary School Teaching Foundations (9)** Brenner, Horrworth
Limited to students in the M.A.T. Program in Elementary Education. A block course, dealing with the content of traditional courses in educational psychology; history of education; human development, learning, and teaching; society and the school; introduction to elementary education. 135 class hours, supplemented by field experiences. (Summer 1968)
- 108 Human Development, Learning, and Teaching (3)** Staff
Lecture (2 hours), conference (1 hour), field work (3 hours). Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22. (Fall and spring—day and evening; summer 1968)
- 111 Elementary School Curriculum and Methods (15)** Moore and Staff
For seniors. Procedures in teaching mathematics, science, social studies, language arts (reading, literature, spelling, handwriting, and oral and written expression), art, music, and physical education. Observations and participation two mornings a week. Prerequisite: Education 108 and 123. (Fall—day)
- 112 Educational Measurement (3)** Iwamoto, Winkler
Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123. (Fall and spring—day and evening; summer 1968)
- 113 Elementary School Art (3)** Crump
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Material fee, \$5. (Spring: lecture and laboratory (3 hours)—evening, field work—as arranged; summer 1968)
- 114 Elementary School Music (3)** Mitchell, Daly
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. (Fall: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1968)
- *115 Elementary School Teaching of Reading (3)**
Introduction to methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123, or teaching experience. (Summer 1968)
- *116 Elementary School Social Studies (3)** Moore
Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Summer 1968)

* This course may not be taken by students who have completed or plan to enroll in Education 111.

- *117 Elementary School Science (3)** St. Cyr
Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Summer 1968)
- 119 Elementary School Curriculum (12)** Brenner and Staff
Limited to students in the M.A.T. Program in Elementary Education. A block course; reading, children's literature, communication arts, arithmetic, science, social studies, art, music, and physical education. 180 class hours, supplemented by appropriate observations and field experiences. (Fall—day)
- *120 Elementary School Mathematics (3)** St. Cyr
Content, methods, materials, concepts of "new mathematics," and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1968)
- 123 Society and the School (3)** St. Cyr and Staff
Lecture (2 hours), conference (1 hour), field work (2 hours). Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel. (Fall and spring—day and evening; summer 1968)
- *128 Children's Literature (3)** Walker, McIntyre
Newer books for children and the children's classics, contribution of literature to child development, children's original expressions. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1968)
- 131 Secondary School Principles and Methods (3)** Boswell
For seniors. Classroom management and teaching techniques for initiating, guiding, and evaluating learning activities. Prerequisite: Education 108 and 123. Field work in the public schools to be arranged. (Fall and spring—day)
- 133 Supervised Experience in Adult Education (3 to 6)** Nadler
Field work, internship, and instructional practice in adult education, employee training, or higher education. May be repeated for credit. Admission by permission of instructor. (Fall and spring—as arranged)
- 134 Student Teaching in Secondary Schools (6 to 9)** Boswell and Staff
For seniors. Sections A, B, and C are for full-time academic majors. Section D is for physical education majors (Hanken, Stallings). Admission by permission of instructor. Prerequisite: Education 131. (134A: fall—as arranged; 134A, 134B, 134C, and 134D: spring—as arranged)
- 135 Student Teaching in Elementary Schools (9)** Moore and Staff
For seniors. Admission by permission of instructor. Prerequisite: Education 111 or equivalent. (Fall and spring—as arranged)

*This course may not be taken by students who have completed or plan to enroll in Education 111.

SPECIAL METHODS COURSES

To be elected in the senior year after substantial preparation in the teaching fields concerned by students in the secondary school curriculum. Course requirements and hours of credit vary with license requirements. Practices of successful teachers studied; actual teaching content as found in current tests and courses of study reviewed.

Prerequisite to all special methods courses: Education 108, 123, and 131. Additional prerequisites are stated under each course.

- 136 Teaching English in Secondary Schools (3) Williams
Prerequisite: 18 semester hours in English. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)
- 137 Teaching Speech (3)
Prerequisite: 18 semester hours in speech or permission of instructor. (Not offered 1968-69)
- 138 Teaching Social Studies in Secondary Schools (3) Boswell
Prerequisite: 24 semester hours of social studies. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)
- 139 Teaching Art in Secondary Schools (3) Crump
Prerequisite: 24 semester hours of Art. Material fee, \$4.50. (Spring: lecture (2 hours), laboratory (2 hours)—evening)
- 140 Teaching Mathematics in Secondary Schools (3) Gates
Prerequisite: mathematics through calculus. (Spring—evening)
- 141 Teaching Latin (3) Gerber
Objectives; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. For junior and senior high school teachers. (Summer 1968)
- 142 Teaching Music in Secondary Schools (3)
Prerequisite: 24 semester hours of Music. (Not offered 1968-69)
- 144 Teaching Science in Secondary Schools (3) Eller
Prerequisite: 24 to 40 semester hours of science. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)
- 146 Teaching Foreign Languages (3) Arsenaault
Prerequisite: 18 semester hours of one foreign language. (Spring—day)

THIRD GROUP

Departmental prerequisite: a degree from an accredited institution is prerequisite to all third-group courses in Education.

203-4 Comparative Education (3-3)

Comparison of United States with foreign educational systems, particularly those of Russia, West Germany, Denmark, Switzerland, France, the British Isles, Canada, and Australia. (Academic year—evening)

*205-6 The Curriculum (3-3) St. Cyr

For experienced teachers. *First half*: curriculum foundations and issues; comparison of curriculum patterns. *Second half*: curriculum development

* Prerequisite: adequate professional preparation.

in subject areas; group consideration of student problems. (Academic year—evening)

***207 Curriculum Materials (3 to 6)** St. Cyr

For experienced teachers. Construction of courses of study and classroom teaching aids, with direct application to students' situations. (Summer 1968)

***208 Human Development (3)** Rashid, McDaniel

Contribution of various disciplines to an understanding of human development throughout the life span; emphasis on practical implications of relevant research. (Fall—day; spring—evening; summer 1968)

209 Child Development (3) Rashid

Interdisciplinary approach to child development. Analysis, interpretation, and practical implications for instruction of research in disciplines contributing to a knowledge of child development. (Fall—evening)

210 Adolescent Development (3) McDaniel

Interdisciplinary approach to adolescent growth and development. Analysis, interpretation, and practical implications for instruction of research in disciplines contributing to a knowledge of the adolescent. (Spring—evening)

***212 Educational Measurement (3)**

Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory use of test instruments. (Not offered 1968–69)

213–14 History of Education (3–3) Williams

First half: European backgrounds of American education. *Second half:* evolution of the American school system. (Academic year—Saturday morning; summer 1968—Education 214)

***216 Education of Slow-learning Children (3)** Amos

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. (Summer 1968)

***217–18 Philosophy of Education (3–3)** Westerlund

First half: to help students formulate a personal philosophy of education. *Second half:* social foundations of education—forces that shape policies and offerings of the school. (Academic year—evening; summer 1968—Education 218)

***219 Elementary School Classroom Procedures (3)** Baker

Current classroom practices; emphasis on planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences. (Summer 1968)

***223–24 Reading Problems (3–3)** Coleman

Elementary and secondary school reading difficulties; classroom and clinical techniques in solving reading problems. Prerequisite: one or more

* Prerequisite: adequate professional preparation.

- years of recent teaching experience. (Academic year—evening; summer 1968—Education 223)
- 226 Reading in Secondary School and College (3)** Coleman
Methods, techniques, and materials necessary for developing efficient reading skills, including skills in content subjects; organizing and evaluating reading programs. (Spring—evening)
- 227 Basic Issues in Elementary Education (3)** Baker
Identification, definition, and analysis of some of the most important problems facing the contemporary American elementary school. (Fall—evening)
- 228 Instructional Areas in Elementary Education (3)** Baker
Objectives, organization, content, and teaching methods in language arts, arithmetic, social studies, science, arts and crafts, health and physical education. (Spring—evening)
- *229 Administration of Elementary Education (3)** Carroll
For experienced teachers and administrators. Achieving instructional objectives, organizing and servicing teaching activities, coordinating school and community life. (Fall—evening; summer 1968)
- 230 Intern Seminar: Elementary School Teaching (3)** Brenner, Horrworth
Limited to students in the special Program in Elementary Teacher Education. Scheduled weekly meetings for discussion of common problems and for cooperatively planned work on areas of individual and group needs. (Spring—Saturday morning)
- *231 Secondary School Classroom Procedures (3)** Boswell
Current classroom practices: teacher-pupil planning, group procedures, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. (Summer 1968)
- *232 Supervision of Elementary Education (3)** Carroll
For experienced teachers and administrators with two or more years of teaching experience. Review of modern supervisory concepts including practices in the operation of the elementary school. (Spring—evening)
- *233 Audio-visual Education (3)** Kubalak
Lecture (2 hours), laboratory (1 hour). Selection, evaluation, and use of audio-visual materials; administrative problems in care, operation, maintenance, and use of such materials and equipment. Material fee, \$7. (Spring—evening; summer 1968)
- †234 Communication Skills for Teachers and Principals (3)** Staff
Life-space interview in the school setting between teacher and child or principal and child; planned interview between parent and teacher, principal, or counselor. (Spring—evening)

• Prerequisite: adequate professional preparation.

† Offered by the Washington School of Psychiatry in affiliation with the University; available to graduate students in the School of Education and to qualified students in the Division of University Students. Classes are held late in the afternoon or evening at 1610 New Hampshire Avenue, N.W. For information consult the Washington School of Psychiatry, telephone: 667-3008.

- *235 **Community Factors Affecting Mental Health** (3) Staff
Contributions of family, neighborhood, and school to mental-emotional well-being of school children; social class, cultural disadvantage, I.Q., race, motivation, and cognition as related to school performance. (Fall—evening)
- *236 **Consultation Affecting Emotional Factors in Learning** (3) Staff
For school staff, clinical personnel, and representatives of community agencies. Experience-centered seminar for development of skill in consultant and consultee relationships; use of Crisis Teaching, Life-space Interviewing, etc. (Fall—evening)
- *237 **Problems Confronting the Elementary Teacher** (3) Staff
For elementary school teachers, principals, supervisors, and pupil personnel workers. Understanding the child's academic and social behavior. Lecture and clinical discussion based on case material. (Fall—evening)
- *238 **Learning Problems and Disabilities** (3) Staff
Identification of emotional disturbance, therapeutic role of teacher, management of disturbing behavior, failures and self-image. (Fall and spring—evening)
- *239 **The Adolescent at School or Work** (3) Staff
Dynamics of adolescence with emphasis on school procedures, methods, and means of meeting personality needs including community and cultural factors. (Spring—evening)
- *240 **Interpersonal Dimensions of Teaching** (3) Staff
Designed to increase self-understanding of the teachers' everyday school relationships vis a vis pupils, parents, staff, and consultants. Limited to 15 students. (Spring—evening)
- †241 **Education of the Gifted** (3) Rashid, Bish
For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects. (Spring—evening; summer 1968)
- *242 **Behavior of the Preschool Child** (3) Staff
The child from 2½ to 5 years old. Parental care, school, the community, modes of optimal and minimal expression. Speech, use of body, use of play and expressive materials. (Fall—evening)
- †243 **Human Relations in the Classroom** (3) Marinaccio
Principles and practices involved in interpersonal relationships between learner and teacher and among learners. (Summer 1968)
- 245 **School and Community** (3) Angel
The school as an important member of a team of social agencies that builds the community. (Fall and spring—evening; summer 1968)

* See (1) footnote on page 238.

† Prerequisite: adequate professional preparation.

- *247 Vocational Education (3)** Walsh
Development, current conceptions, agencies involved, problems, and trends in the United States and foreign countries at secondary and post-secondary levels. (Fall—evening)
- 248 Student Personnel Work with College Groups (3)** Kirkbride
Principles and procedures of personnel work with campus groups. Promotion, limitation, and coordination of campus group activities and development of student leadership. (Spring—day)
- *249–50 Practicum in Student Personnel Work (1 to 3–1 to 3)** Phelps
Supervised practical experience in student personnel services. Admission by permission of instructor. (Academic year—as arranged)
- *251 Foundations of Guidance and Personnel Services (3)** Kiley, Detwiler
Introductory survey: definitions, scope, principles, historical background, organization, services, emerging trends, and issues. (Fall—evening and Saturday morning; spring—evening; summer 1968)
- 252 Organization and Administration of Guidance Services (3)**
For guidance directors, supervisors, and experienced school counselors who hope to qualify for such positions. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance. (Spring—evening)
- 253 Analysis of the Individual for Purposes of Counseling (3)** Detwiler
Detailed study of individual analysis and appraisal techniques. Development of systematic case study. Prerequisite: Education 112 or equivalent. (Fall and spring—evening; summer 1968)
- *254 The Junior High School (3)**
Purposes, organization, core program, guidance, developing course of study, extra-classroom activities. (Not offered 1968–1969)
- *255–56 Secondary Education (3–3)** Root
First half: current proposals for improvement of secondary education.
Second half: current problems in each subject-matter field. (Academic year—Saturday morning; summer 1968)
- 257 Educational and Occupational Development (3)** McDaniels
Theories of career development; structure of education, training, and work in the United States; sources, forms, collection, evaluation, and dissemination of educational-occupational information. (Fall and spring—evening; summer 1968)
- 258 Techniques of Counseling (3)** Detwiler, Linkowski
Intensive study of educational and psychological processes involved in counseling interviews. Vocational, educational, and personal counseling problems. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258. (Fall and spring—evening; summer 1968)

* Prerequisite: adequate professional preparation.

***259 Secondary School Administration (3)**

For experienced teachers and administrators with two years of secondary school teaching. Survey of administration including practices of the modern high school. (Fall—evening; summer 1968)

***260 Secondary School Supervision (3)**

For experienced teachers and administrators with two or more years of teaching experience. Review of modern supervisory concepts including practices followed in the operation of the school. (Spring—evening)

***261 Practicum in Guidance (3 to 6)**

Detwiler

Supervised practical instruction. Prerequisite: graduate work in counseling. Admission by permission of Department Chairman. (Fall and spring—as arranged; summer 1968)

263-64 Employee Training (3-3)

Nadler

First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. *Second half:* administrative problems and practices, training media, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training. (Academic year—evening)

†265 Teaching Secondary School English—Materials, Resources, Content (3)

Williams

For experienced teachers. Review of curriculum patterns. Discussion of current and new approaches to course content. (Summer 1968—NDEA English Institute)

†267 Teaching Secondary School Social Studies—Materials, Resources, Content (3)

Boswell, Yates

For experienced teachers. Review of curriculum patterns. Discussion of current and new approaches to course content. (Fall or spring—as arranged)

***269-70 Business Management of Schools I-II (3-3)**

First half: philosophy, responsibilities, and functions of the business management office in public education institutions. *Second half:* practicum in educational business management. (Academic year—evening)

***271 The Teacher and School Administration (3)**

Carroll, Beach

Role of federal, state, and local administrative units; school finance; legal controls; school plant; public support; improving teaching conditions. (Fall—evening; spring—Saturday morning; summer 1968)

***272 The Teacher and School Supervision (3)**

Carroll, Beach

Nature, organization, human relationships, and techniques. (Fall—Saturday morning; spring—evening; summer 1968)

***273-74 Teacher Education (3-3)**

Boswell

First half: aims, objectives, and basic issues; study of outstanding and experimental programs. *Second half:* recruitment and selection, general edu-

* Prerequisite: adequate professional preparation.

† Also offered through the College of General Studies in cooperation with the D.C. Public Schools.

‡ Offered through the College of General Studies in cooperation with the D.C. Public Schools. Mrs. Yates is Assistant Professorial Lecturer in the College of General Studies.

- cation, teaching-field preparation, professional sequences, laboratory experiences. (Academic year—evening)
- *275 Seminar: School Finance (3)** Carroll
Educational financial theory, practice, and control, including methods of financing. (Fall—evening)
- *276 Seminar: Public Relations in School Administration (3)** Carroll
Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making. (Spring—evening)
- *278 School Law (3)** Ware
Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group. (Spring—evening)
- *279-80 Adult Education (3-3)** Nadler
First half: current concepts and objectives, agencies involved, programs on all levels—international through community. *Second half:* the adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. (Academic year—evening; summer 1968—Education 280)
- 281 Seminar: Education in the Soviet Union (3)**
History of Soviet education; comparison of current American and Soviet education; relationship between Soviet education and Soviet life; type of society and citizen Soviet leaders try to create, conditions which foster or impede their efforts. (Not offered 1968-69)
- 282 Seminar: Education in Communist China (3)**
(Not offered 1968-1969)
- *283 Higher Education in the United States (3)** Angel
(Formerly Higher Education)
Development, scope, purposes, present status, programs and trends in higher education in the United States. (Fall—evening)
- *284 Administration of Higher Education (3)** Angel
(Formerly Higher Education)
Government, organization, and administration of colleges and universities. (Spring—evening)
- *285 Student Activities (3)** Angel
Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation. (Summer 1968)
- 286 Introduction to Student Personnel Work (3)** Kirkbride
Student personnel services in American higher education. Personnel work as an integral part of the college program; introduction to the literature of the field. (Fall—day; summer 1968)

* Prerequisite: adequate professional preparation.

- *287-88 Clinical Study of Reading Problems (3-3)** Coleman
For advanced students. Diagnostic and corrective work under supervision of the Reading Center. Prerequisite: Education 223-24 or equivalent. Material fee, \$10 a semester. (Academic year—evening)
- *289 Supervisory Problems in Reading (3)** Coleman
For experienced teachers, principals, supervisors, and superintendents. Problems in planning, reorganizing, and improving the total reading program and in promoting cooperative staff effort toward increasing teaching efficiency. (Not offered 1968-1969)
- 291 Planning the School Plant (3)** Chase
Selection of sites; evaluation of existing buildings; utilization of present facilities; adaptation to curricular needs; building, operation, and maintenance problems. (Fall—evening)
- 293-94 Research (3-3)** Staff
Individual research under guidance of a staff member. Program and conferences arranged with an instructor. (Academic year—as arranged; summer 1968)
- *295 Research Methods and Procedures (3)** Rashid, Winkler
Required of all candidates for graduate degrees in Education. To be taken early in the graduate program. Prerequisite: elementary course in statistics. (Fall and spring—day and evening; summer 1968)
- 296 Seminar: Educational Research (3)** Rashid
Analysis of scientific approaches to problems in education and evaluation of the application of research techniques. Required of all candidates for the Ed.D. degree and open to candidates for other advanced degrees. Prerequisite: Education 295 or equivalent. (Fall and spring—evening; summer 1968)
- *297 Personnel Administration (3)** Carroll
Organization and administration of personnel programs for educational institutions. Basic philosophy, principles, responsibilities, and functions. (Not offered 1968-69)
- *298 Seminar: Personnel Administration (3)** Carroll
Research: policies, rules and regulations, staff organizations, negotiations. (Summer 1968)
- 299-300 Thesis Research (3-3)** Staff
Required of Master of Arts in Education candidates writing Master's theses. (Academic year—as arranged; summer 1968)
- *301 Data Processing in Education (3)** McCarthy
Machine accounting and computer technology for counselors, teachers, and administrators. (Summer 1968)
- 331 Development of the Young Child (3)** McIntyre
Lecture and laboratory. Basic concepts and problems of child development; observation, behavior patterns, child study. (Fall—evening)

* Prerequisite: adequate professional preparation.

- 332 Curriculum for Early Childhood (4)** McIntyre
Lecture and field. Language arts, science, mathematics, social studies, and the creative arts, emphasizing adaptation to skills and needs of the young child; review of new programs. (Spring—evening; summer 1968)
- 333 Early Childhood Classroom Management (4)** McIntyre
Lecture and field. Planning, reporting, records, equipment, space use, working with parents, and survey of types of preschools. (Fall—evening)
- 334 Community Resources for the Young Child (4)** McIntyre and Staff
Lecture and field. Use of community agency services and specialists in pertinent fields. (Spring—evening)
- 335 Practicum in Early Childhood Education (3 to 6)** McIntyre
Supervised teaching and seminar in the early childhood field. Prerequisite: Education 331, 332, and 333; or equivalent; and permission of instructor. (Fall and spring—day)
- *348 Introduction to Art Therapy (3)** Staff
Theoretical and practical problems facing those who use art activity in the service of personal development. (Spring—evening)
- †349 Art History and Art Theories (3)**
Changes of artistic style from the early Middle Ages to the present; correlation with contemporary theories. (Not offered 1968-69)
- †350 Techniques of Art and Art History Teaching (3)**
Techniques of painting by reconstructing details of pictures; instruction in preparation of audio-visual media and display techniques; analysis of form and content of art gallery tours. (Not offered 1968-69)
- 352 Advanced Career Development (3)** McDaniel
Advanced workshop for experienced counselors; theory and uses of new educational media in guidance; field study of job opportunities in area business, industry, and government agencies. Admission by permission of instructor. (Summer 1968)
- 355 Counseling in Groups (3)** Staff
For experienced counselors and psychologists. Peer-group relationships with emphasis on adolescent groups. Principles of group dynamics as related to interaction within groups. Techniques and practice in group counseling. (Fall—day)
- 356 Seminar: Guidance and the Disciplines (3)** Staff
For experienced counselors. Exploring the foundations of guidance through the disciplines of psychology, sociology, economics, anthropology, and philosophy. (Spring—Saturday morning)

* See (†) footnote, page 238.

† Offered in conjunction with the National Gallery of Art and the Bureau of Cooperative Research, U. S. Office of Education. Admission by permission of the Chairman of the Department of Education.

- 357 Mental Hygiene (3)** Winkler, McDaniels
Mental health problems; emphasis on needs of counselors, teachers, and others working with children and adolescents. (Fall and spring—evening; summer 1968)
- 361 Medical Aspects of Rehabilitation Counseling (3)** Sinick
Etiology, symptomology, and treatment of chronic and traumatic disorders with rehabilitation counseling implications. Admission by permission of instructor. (Fall—day)
- 362 Client Evaluation in Rehabilitation Counseling (3)** Sinick
Test and nontest methods of furthering client and counselor understanding. Prerequisite: Psychology 131. (Spring—as arranged)
- 363 Psychosocial Aspects of Rehabilitation Counseling (3)** Linkowski
Impact of congenital and later disabilities on attitudes, self concepts, and motivations. Implications for rehabilitation counseling. Admission by permission of instructor. (Fall—day)
- 365-66 Field Work in Rehabilitation Counseling (3-3)** Sinick
Field work of one full day a week. *First half:* concurrent seminar covering history, philosophy, and introduction to practices. *Second half:* concurrent seminar covering job analysis, placement, and followup. Education 365 is prerequisite to Education 366. Admission by permission of instructor. (Academic year—as arranged)
- 367-68 Internship: Rehabilitation Counseling (6-6)** Linkowski
Supervised practice of three full days a week, with seminar providing integration of theory and practice. Prerequisite: Education 365-66. (Academic year—as arranged)
- 369 Professional Issues in Rehabilitation Counseling (3)** Sinick
Culminating seminar covering professional problems and ethical issues. Prerequisite: Education 367. (Spring—as arranged)
- 373 The Junior-Community College (3)** Angel
Development, organization, curriculum, role, issues, and problems of the junior-community college. (Fall—evening)
- 374 Current Issues in Higher Education (3)** Angel
Investigation of current issues in higher education. (Spring—evening)
- 379 Practicum in Adult Education (3 to 6)** Nadler
Supervised practical experience in various forms of adult education. May be repeated for credit. Admission by permission of instructor. (Fall and spring—as arranged)
- 380 Sensitivity Training: Laboratory Method (3)** McCune, Nadler
A sensitivity learning experience in human relations using unstructured group experience, individual feedback, experimentation, and practice. Admission by permission of instructor. (Fall—evening; summer 1968)
- 381 Adult as a Learner (3)** Angel
Psychology of learning as applied to adults; effect of age on learning; physical and social environment in adult education situations. (Fall—evening)

- 382 Instructional Technology in Adult Education (3)** Ehat
Methods, techniques, and devices in adult education; traditional methods, developing action-oriented learning situations, programmed instruction, and systems approach in developing training materials. (Fall—evening)
- 383 Counseling of Adults (3)**
Concepts and practices with particular emphasis on the needs of adults in work situations. (Spring—evening)
- 384 Evaluation of Adult Education (3)** McCune
Measurement and evaluation of adult education in school and nonschool agencies—business, industry, government, voluntary, and community. (Spring—evening)
- 386 Current Issues in Adult Education (3)** Holden
Investigation of current issues in adult education. (Spring—evening)
- 387 Administration of Adult Education (3)** Staff
Program planning, staff development, fiscal operations, facilities, and maintenance of effective community relations. (Not offered 1968-69)

FOURTH GROUP

A Master's degree from an accredited institution is prerequisite to all fourth-group courses. All seminars listed in the fourth group are open to doctoral candidates or other post-Master's degree students with approval of instructor. Study is individually planned on the basis of previous study and experience in the subject field to attain an advanced level of competence and meet identified professional needs or field requirements in a doctoral program.

Each of the following courses is offered fall and spring, as arranged, and summer 1968. Each course may be repeated for credit.

- | | |
|--|----------------|
| 401 Seminar: History of Education (arr.) | Williams |
| 403 Seminar: Philosophy of Education (arr.) | Westerlund |
| 405 Seminar: Human Growth and Development (arr.) | Rashid |
| 411 Seminar: Elementary Education (arr.) | Baker |
| 413 Seminar: Secondary Education (arr.) | Root |
| 421 Seminar: Adult Education (arr.) | Nadler |
| 423 Seminar: Higher Education (arr.) | Angel |
| 424 Seminar: Personnel Work in Higher Education (arr.) | Kirkbride |
| 425 Seminar: Teacher Education (arr.) | Boswell, Baker |
| 427 Seminar: Employee Training (arr.) | Nadler |
| 431 Seminar: Administration (arr.) | Carroll |
| 433 Seminar: Supervision (arr.) | Carroll |
| 435 Seminar: Elementary Administration (arr.) | Carroll |

- 437 Seminar: Secondary Administration (arr.)
- 441 Seminar: Curriculum (arr.) St. Cyr
- 443 Seminar: Guidance and Counseling (arr.) McDaniels, Detwiler
- 445 Seminar: Research and Evaluation (arr.) Rashid
- 491 Dissertation (arr.) Staff
- Preparation of a research outline; research and writing of an approved doctoral dissertation under the direction of major adviser and dissertation committee.

English*

Professors C.D. Linton, C.W. Cole, R.H. Moore, J.H. Coberly, P.H. Highfill, Jr., J.G. Allee, Jr., J.P. Reesing, Jr. (Chairman), R.H. Walker Jr., Milton Crane, O.W. Fryckstedt (Visiting)

Adjunct Professor J.C. Broderick

Associate Professors W.L. Turner, Muriel McClanahan, Elizabeth Wright, S.J. Brown, R.N. Ganz, Jr., G.E. McCandlish, C.C. Mondale, A.E. Claeysens, Jr., J.B. Misenheimer, Jr.

Assistant Professors R.C. Rutledge, J.A. Quitslund, Judith Plotz, L.C. Schaefer, Margaret Sullivan

Assistant Professorial Lecturers J.J. Monroe, Harrison Clark

Instructors Barbara Dunham, D.R. Janis, J.R. Greenya, Joan Caton, Janet Collins, Mary McHenry, Nancy Powelson, Mary Walden, D.M. Atwood, Murray Darrish, Margaret Hale, R.A. Schroth, Pastora San Juan, Diane Weber

Lecturers Edgar Boling, Jr., Jean Gladding, Elna Broffman, M.M. Feick, Evelyn Lynch, Susan Moscov, J.L. Gabriel, Margaret Bonney, Mary Cole, J.B. Innes, Jr., J.A. Javens, Olivia Rivers, Esther Swick, Donalie Weingarten

Bachelor of Arts with a major in American Thought and Civilization (Field-of-Study)†.—Prerequisite: the Arts and Letters curriculum, page 69.

Required: the general requirements, pages 74-78, and the passing of the American Thought and Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined is summarized under four general headings: (1) European cultural history—the Renaissance and modern social and intellectual cultures as a background to contemporary civilization with particular attention to English literature and history from the 16th through the 19th centuries; (2) American history—the political, economic, social, and religious thought and experience of the American people; (3) American philosophy and fine arts—a survey of periods and movements with a knowledge of outstanding individuals; (4) American literature—a knowledge of major writers, together with a study of poetry, fiction, and drama. A proseminar (English 179-80) assists the student in preparing for the major examination. At registration, the major adviser gives each student a check list of available courses grouped as prerequisite, necessary, or desirable for completion of the major study program.

* Staff of Instruction for the academic year 1967-68.

† See page 176 for description of American Thought and Civilization University-sponsored course.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for American Thought and Civilization majors.

Bachelor of Arts with a major in English Literature (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69. English 91-92 is recommended for prospective majors.

Required: the general requirements, pages 74-78, and the passing of the English Literature major examination at the end of the senior year. The field of coordinated knowledge upon which the student will be examined at the end of his senior year is summarized under the following general headings: (1) the history of English literature from the Anglo-Saxon period; (2) the chief English writers (a certain familiarity with each man and his main works and a detailed knowledge of Shakespeare); (3) English social and political history as it bears upon or is reflected in the literature; (4) European intellectual backgrounds and movements which have affected English literature. The proportion of work taken in each of these areas should be worked out by the student in consultation with one of the English Literature advisers. A proseminar (English 199-200) assists the student in preparing for the major examination. A detailed description of the major is available in the Office of the Dean of Columbian College of Arts and Sciences.

Master of Arts in the field of American Literary and Cultural History.—Prerequisite: the degree of Bachelor of Arts with an undergraduate major at this University, or the equivalent, in American Thought and Civilization, English Literature (with introductory courses in American literature and American history), or History (with American history as a major part).

Required: the general requirements, pages 83-87, including: (1) twenty-four semester hours of course work, planned in consultation with the adviser on the basis of the student's undergraduate preparation; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the material falls; (3) a written Master's Comprehensive Examination on a reading list assigned to all students registered in this degree program.

Master of Arts in the field of English and American Literature.—Prerequisite: the degree of Bachelor of Arts with an undergraduate major in English Literature or American Thought and Civilization at this University; or twenty-four semester hours in English and/or American literature above the sophomore level.

Required: the general requirements, pages 83-87, including: (1) twenty-four semester hours of course work, planned in consultation with the adviser on the basis of the student's undergraduate preparation, including a comprehensive survey of American literature and of English literature from 1600; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the material falls; (3) a written Master's Comprehensive Examination on American literature and on English literature from 1600.

Master of Arts in the field of English Literature.—Prerequisite: the degree of Bachelor of Arts with an undergraduate major in English Literature at this University, or twenty-four semester hours in English literature above the sophomore level. The student who has not passed the major examination in English at this University must take a candidacy examination which, in its scope and difficulty, is comparable to the major examination in English.

Required: the general requirements, pages 83-87, including: (1) twenty-four semester hours of course work, planned in consultation with the adviser; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the material falls; and (3) a written Master's Comprehensive Examination.

Master of Arts in the Field of Linguistics.—See pages 287-89, and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy field of study in American Literature: American Fiction.—See pages 83-85, 87-88, for requirements for the degree.

Doctor of Philosophy fields of study in English Literature: English Drama (16th Century, 17th Century, 20th Century), History of English Drama, and English Literature (17th Century, 18th Century, 20th Century).—See pages 83–85, 87–88, for requirements for the degree.

Doctor of Philosophy field of study in American Thought and Culture.—See page 175.

Bachelor of Arts in Education with a teaching field in English.—Prerequisite: the Education curriculum, pages 71–72.

Required: the English option and the professional courses listed on pages 99, 105.

Students whose College Board English Composition Achievement Test scores suggest inadequate preparation may be assigned to English 1x or may be tested in vocabulary, spelling, grammar, standard usage, and writing skill, before placement in either English 1x or 1. Students whose scores indicate marked superiority will be allowed to waive the English 1 requirement.

All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classics, French, German, Italian, Slavic, or Spanish) will follow the sequence of English 1 or 1x, both semesters of one of the introductory literature courses, and English 40.

English 2 is the second half of the six-hour composition requirement of students not required to follow the Columbian College of Arts and Sciences sequence.

Departmental prerequisite: English 1 or 1x is prerequisite to all other courses in English. One of the following six-hour courses—English 51–52, 71–72, or 91–92; Classics 71–72; French 51–52; German 51–52; Italian 51–52; Slavic 91–92 or 93–94; or Spanish 51–52—is prerequisite to all second-group courses in English except English 125 and English 171–72.

ENGLISH COMPOSITION

FIRST GROUP

A English for Foreign Students (3)

Wright and Staff

Reading and writing to assist the foreign student in overcoming deficiencies in the use of English. Special attention to spelling, syntax, grammar, idiom, and vocabulary. (Fall and spring—evening; summer 1968)

B English for Foreign Students (3)

Wright and Staff

For second-semester foreign students not ready for English 1. Writing of expository paragraphs and themes; outlining; reading for comprehension, vocabulary, and style. (Fall and spring—evening; summer 1968)

1 English Composition (3)

Moore and Staff

Analysis and practice of expository techniques with emphasis on unity, development, and organization; library research procedure. (Fall and spring—day and evening; summer 1968)

1x English Composition (3)

Moore and Staff

Intensive course in English grammar and composition for students inadequately prepared for English 1. Begins with detailed instruction, drill, and exercises in basic structure of the English language and in writing paragraphs; continues with content of English 1. English 1x meets five hours

a week and carries 3 semester hours of credit. Total fee, \$205 (tuition fee of \$180 plus additional fee of \$25). (Fall and spring—day and evening)

2 English Composition (3)

Moore and Staff

For second-semester freshmen not following Columbian College sequence. Readings and practice in expository and argumentative techniques; research practice. Credit not given to students with credit for English 40 or former 4. Prerequisite: English 1 or 1x. (Fall—day; spring—day and evening; summer 1968)

40 English Composition (3)

Moore and Staff

(Formerly English 4)

Second half of the 6-hour English Composition course required of Columbian College students. Critical analysis and practice in expository and argumentative techniques; research practice. Credit not given to students with credit for English 2. Prerequisite: English 1 or 1x and both semesters of one of the introductory literature courses. (Fall and spring—day and evening; summer 1968)

SECOND GROUP

109 Expository Writing (3)

McClanahan

Types of expository writing; weekly exercises based on students' needs; particular attention may be given to problems in the writing of graduate theses. Prerequisite: English 1 or 1x; 2, 40, or former 4. (Fall—day)

113 Narrative Writing (3)

Claeysens, Schaefer

Techniques of narrative writing; class criticism of student writing. Prerequisite: English 1 or 1x; 2, 40, or former 4; consent of instructor. (Fall—day and evening)

114 The Writing of Fiction—the Short Story (3)

Claeysens, Schaefer

Prerequisite: English 113; consent of instructor. (Fall—day; spring—evening)

115-16 The Writing of Plays (3-3)

Claeysens

Prerequisite: consent of instructor. (Academic year—evening)

118 The Writing of Fiction—the Novel (3)

Schaefer
(Spring)

Prerequisite: English 113 or English 114, consent of instructor. —evening)

120 The Writing of Poetry (3)

Schaefer

(Spring—day)

ENGLISH LITERATURE

FIRST GROUP

51-52 Introduction to English Literature (3-3)

Brown and Staff
(Academic year—

Historical survey. Prerequisite: English 1 or 1x. day and evening; summer 1968)

- 91-92 **Introduction to European Literature (3-3)** Crane and Staff
 Consideration of various types. Prerequisite: English 1 or 1x. (Academic year—day and evening)

SECOND GROUP

- 121 **Medieval English Literature—Exclusive of Chaucer (3)** Allee
 (Not offered 1968-69)
- 122 **Chaucer (3)** Allee
 (Spring—evening)
- 125 **Introduction to English Linguistics (3)** Allee
 Development of the English language in a historical treatment of English grammar. (Fall—evening)
- 129-30 **Elizabethan Nondramatic Literature (3-3)**
 Nondramatic literature from 1485 to 1601. (Academic year—day)
- 135-36 **Shakespeare (3-3)** Brown, Highfill
 (Academic year—day and evening; summer 1968)
- 139-40 **The 17th Century (3-3)** Reesing
First half: poetry and prose from 1603 to 1660. *Second half:* Milton.
 (Academic year—evening)
- 141-42 **English Literature, 1660-1780 (3-3)** Highfill
 Poetry and prose of the Neoclassic period. *First half:* 1660-1740. *Second half:* 1740-1780. (Academic year—day; summer 1968—English 142)
- 151-52 **The Romantic Movement (3-3)**
 Poetry and prose, 1780-1830. (Academic year—day)
- 161-62 **Victorian Literature (3-3)** Darrish
 Poetry and prose. *First half:* 1830-1858. *Second half:* 1859-1900.
 (Academic year—evening; summer 1968—English 162)
- 165-66 **The 20th Century (3-3)** Linton
 British poetry, prose, and drama since 1900. (Academic year—day)
- 181-82 **The English Novel (3-3)** Coberly
 Major novelists, 18th and 19th centuries. (Academic year—day)
- 183-84 **The English Drama (3-3)** Brown, Highfill
First half: principally the drama of Shakespeare's contemporaries. *Second half:* historical survey, 1660 to present. (Academic year—day)
- 192 **Medieval Legend and Saga (3)** Allee
 Celtic and Norse. (Not offered 1968-69)
- 199-200 **Proseminar in English Literature (3-3)** Crane and Staff
 For English literature majors. Readings, conferences, and group discussions. (Academic year—day and evening)

THIRD GROUP

- 222 **Studies in Chaucer** (3) Allee
(Summer 1968)
- 223-24 **Old English** (3-3) Allee
English language and literature before 1100. *First half:* Old English grammar and readings. *Second half:* *Beowulf*. (Academic year—evening)
- 229-30 **Studies in Elizabethan Nondramatic Literature** (3-3) Quitslund
(Not offered 1968-69)
- 235-36 **Studies in Shakespeare and His Contemporaries** (3-3) Crane, Brown
(Not offered 1968-69)
- 239-40 **Studies in 17th Century Literature** (3-3) Reesing
First half: chief figures exclusive of Milton. *Second half:* Milton.
(Not offered 1968-69)
- 241-42 **Studies in English Literature, 1660-1780** (3-3) Highfill
(Not offered 1968-69)
- 251-52 **Studies in the Romantic Movement** (3-3) Plotz
(Not offered 1968-69)
- 261-62 **Studies in Victorian Literature** (3-3)
(Not offered 1968-69)
- 265-66 **Studies in 20th Century Literature** (3-3) Linton
Eliot and his contemporaries. (*First half:* spring—day. *Second half:* not offered 1968-69.)
- 279 **Research Methods and Bibliographical Materials** (3) Broderick
To acquaint graduate students with the principal sources of bibliography and with typical problems in research. (Fall—evening)
- 283-84 **Studies in Dramatic and Theatrical History** (3-3) Highfill
(Academic year—day)
- 291 **Studies in Comic Literature** (3) Crane
(Fall—evening)
- 292 **Studies in Modern Dramatic Literature** (3) Crane
(Spring—evening)
- 293-94 **Seminar: the English Novel** (3-3) Coberly
(Academic year—day)
- 295-96 **Studies in the History of English Literary Criticism** (3-3)
(Not offered 1968-69)
- 299-300 **Thesis Research** (3-3) Staff

FOURTH GROUP

- 398 **Advanced Reading and Research** (arr.) Staff
 Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 **Dissertation Research** (arr.) Staff
 Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

AMERICAN LITERATURE

FIRST GROUP

- 71-72 **Introduction to American Literature** (3-3) Cole and Staff
 Historical survey. *First half*: from beginnings to the Civil War. *Second half*: from the Civil War to present. Prerequisite: English 1 or 1x. (Academic year—day and evening; summer 1968)

SECOND GROUP

- 167-68 **Realism in American Literature** (3-3)
 (Not offered 1968-69)
- 170 **The American Short Story** (3) Coberly
 Historical development of the short story in America. (Fall—day; summer 1968)
- 171-72 **Studies in American Literature** (3-3) McCandlish
 Major factors in the national cultural tradition as shown by outstanding writers. Prerequisite: English 51-52 or 71-72. (Academic year—day and evening)
- 173-74 **Major American Poets** (3-3) Ganz
 Advanced critical study of significant writers and movements. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day; summer 1968—English 174)
- 175-76 **American Drama** (3-3) Cole
 Historical and critical study of significant plays and forms. *First half*: from beginnings to 1930. *Second half*: since 1930. (Academic year—day; summer 1968)
- 177-78 **The American Novel** (3-3) Coberly
 Historical and critical study of significant novels. *First half*: from beginnings through 19th century. *Second half*: 20th century. (Academic year—evening)
- 179-80 **Proseminar in American Thought and Civilization** (3-3) Mondale
 For American Thought and Civilization majors. Readings, conferences, and group discussions. (Academic year—day and evening)
- 194 **History as a Literary Art** (3) McCandlish
 Literary study of American historians of the 19th century. (Not offered 1968-69)

- 195 Social Aspects of the New England Renaissance (3)
(Not offered 1968-69)

Mondale

THIRD GROUP

- 270 Seminar: the American Short Story (3)
(Not offered 1968-69) Coberly
- 271-72 Seminar: American Thought (3-3) Mondale
Intensive consideration of specific periods and themes, primarily literary.
in the history of American civilization. (Academic year—evening)
- 273-74 Studies in American Poetry (3-3) Ganz
(Academic year—evening)
- 277-78 Seminar: American Fiction (3-3) Coberly
(First half: not offered 1968-69. Second half: summer 1968.)
- 279 Research Methods and Bibliographical Materials (3) Broderick
To acquaint graduate students with the principal sources of bibliography
and with typical problems in research. (Fall—evening)
- 280 Studies in American Transcendentalism (3) Broderick
(Spring—evening)
- 285-86 Seminar: American Colonial Literature (3) McCandlish
(Academic year—day)
- 289-90 Thesis Research (3-3) Staff

FOURTH GROUP

- 381-82 Readings in American Civilization (3-3) Walker
(Formerly English 281-82)
Principal descriptive and interpretive works dealing with American civiliza-
tion; emphasis on the interdisciplinary understanding of this subject.
(Academic year—evening)
- 387-88 Readings in American Fiction (3-3) Coberly
(Formerly English 287-88)
Literature and the critical materials for which graduate students are respon-
sible on the Doctor of Philosophy general examination. (Not offered
1968-69)
- 398 Advanced Reading and Research (arr.) Staff
Limited to students preparing for the Doctor of Philosophy general exam-
ination. May be repeated for credit. (Fall and spring—as arranged;
summer 1968)
- 399 Dissertation Research (arr.) Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Epidemiology and Environmental Health*

Professors J.W. Millar (*Chairman*), J.A. Halsted (*International Health*)
Clinical Professor Murray Grant (*Community Health*)
Professorial Lecturer Daniel Finucane
Associate Professors C.R. Hartman, G.L. Harper
Associate Clinical Professors David Frost, G.O. Pierce, Lewis Robbins, W.J. Zukel
Assistant Professor M.E. Landay
Assistant Clinical Professors Lawrence Pyle, Jr., John Vinyard, Jr.
Assistant Professorial Lecturers S.H. Barboo, Jr., C.H. Miller

Doctor of Philosophy field of study in Human Ecology.—See pages 83–85, 87–88, for requirements for the degree.

- 201 Introduction to Epidemiology and Environmental Health (2)** Millar and Staff
Required for medical students; open to qualified graduate students. Principles and methodology of epidemiology and biostatistics. Ecological approach to health and disease. (Spring—day)
- 203 Introduction to Parasitology and Mycology (1)** Millar, Landay
Required for medical students; open to qualified graduate students. Protozoa, metazoa, fungi; host-parasite relationships, prevention and control. (Spring—day)
- 217 Advanced Mycology (4)** Landay
(Formerly Microbiology 217)
Lecture (2 hours), laboratory (4 hours). Advanced study of fungi. Prerequisite: Microbiology 211 or equivalent. Laboratory fee for nonmedical students, \$16. (Fall—day)
- 230 Statistics (2)** Staff
(Formerly Microbiology 230)
Application of statistical methods to health-related problems. Prerequisite: elementary college algebra. (Spring—day)
- 301 Epidemiology and Environmental Health (1)** Staff
Required for medical students; open to qualified graduate students. Lectures and seminars. Emphasis on means of organizing community to provide epidemiological solutions to health problems, developing an awareness of health resources and significant socioeconomic considerations in bringing total health to the community, showing importance of health as related to individual citizens. World health problems. Prerequisite for graduate students: Microbiology 211, 212; or equivalent. (Fall—day)
- 351 Global Epidemiology (1)** Staff
Geographic pathology of disease and international aspects of disease prevention and control, including world demographic problems. (Fall—day)

* Staff of Instruction for the academic year 1967–68.

352 Experimental Epidemiology (1)

Staff

Seminar. Student participation in definitions, design, and methods for developing epidemiologic studies of diseases. Coordinated so that protocol developed can be applied to field use. (Fall—day)

353 Military Preventive Medicine (1)

Millar

Operational medicine, environmental and sanitation problems, epidemiologic diseases of military importance and their prevention and control. Medical aspects of aerospace and submarine medicine. (Fall—day)

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Geography and Regional Science*

Professorial Lecturers Simon Baker, R.D. Campbell

Associate Professors P.J. Mika (Chairman), Marvin Gordon

Assistant Professors Subramaniam Moryadas, J.C. Lowe

Bachelor of Arts with a major in Geography (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Geography 51, 52, Geology 1, and an introductory course in Statistics.

Required: in addition to the general requirements, pages 74–78, twenty-six semester hours of Geography beyond first-group courses, including Geography 103–4 and 105; twelve hours from Group A and three hours from Group B.

Group A: Geography 125, 126, 127, 132, 134, 141, 146. Group B: Geography 151, 153, 155, 161, 165, 166.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Geography majors.

Master of Arts in the field of Geography.—Prerequisite: a Bachelor of Arts degree with a major in Geography from this University, or equivalent.

Required: the general requirements, pages 83–87, including Geography 205–6, 299–300.

Bachelor of Arts in Education with a teaching field in Geography.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Geography option and the professional courses listed on pages 100, 105.

Master of Arts in Education with a field in Classroom Teaching (specialization in Geography).—Prerequisite: a Bachelor's degree with sufficient concentration in Geography to permit successful pursuit of graduate study in the Department of Geography and Regional Science. Candidates must be accepted by both the School of Education and the Department of Geography and Regional Science.

Required: the general requirements, pages 107–10, including fifteen semester hours of graduate study in Geography.

* Staff of Instruction for the academic year 1967–68.

FIRST GROUP

51 Introduction to Geography (3)

Staff

Interrelated processes affecting the character of landforms, hydrography, soils, vegetation, and climate; relevance of their world patterns to man.
(Fall—day; spring—evening; summer 1968)

52 World Regions (3)

Staff

Survey of major countries, synthesis and analysis of major world regions.
(Fall—day; spring—evening; summer 1968)

SECOND GROUP

103-4 Cartography (4-4)

Lowe

A year course: credit toward a degree at this University given on completion of Geography 104. Exercises in graphic presentation and analysis of information compiled from various sources. Laboratory fee, \$11 a semester. (Academic year—day)

105 Weather and Climate (3)

Mika

Climatic elements and their controls, analysis of world climatic patterns.
(Fall—day)

125 Transportation Complexes (3)

Lowe

World communications and transportation systems, interrelations between transportation and areal organization of man's activities. (Fall—day)

126 World Economic Geography (3)

Moryadas

World patterns and processes underlying the areal structure of selected economic activities. (Fall—day)

127 World Population and Settlement (3)

Gordon

Patterns of world population; factors contributing to population pressures, growth, and migrations. (Spring—day)

132 Natural Resources (3)

Mika

Implications for society of the areal variations in natural resources and methods of resource use. (Spring—day)

134 Location of Industry (3)

Moryadas

Structure of major world industries, location theory and locational requirements. (Spring—day)

141 Urban Settlement (3)

Lowe

Location, functions, and forms of cities; urban-rural relationships; urban problems and the history of their development. (Spring—day)

146 World Political Geography (3)

Gordon

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration. (Fall—day; spring—evening)

- *151 **United States and Canada** (3) Gordon
(Summer 1968)
- *153 **Europe** (3) Staff
(Not offered 1968-69)
- *155 **Africa** (3) Staff
(Not offered 1968-69)
- *161 **Latin America** (3) Gordon
(Spring—day)
- *165 **Asia** (3) Moryadas
(Summer 1968)
- *166 **Soviet Union** (3) Staff
(Not offered 1968-69)
- 189-90 **Readings in Geography** (arr.) Staff
(Academic year—as arranged; summer 1968)

THIRD GROUP

- 205-6 **Introduction to Regional Science** (3-3) Moryadas
A year course: credit toward a degree at this University given on completion of Geography 206. Theories of location, regional structures and sources of regional information, quantitative and qualitative techniques of analysis and synthesis. Prerequisite: Statistics 91 or equivalent. (Academic year—evening)
- 210 **Seminar: Applied Economic Geography** (3) Lowe
Problems in analyzing area and site development potential; evaluating alternative locational possibilities for manufacturing, commercial, and service facilities. (Summer 1968)
- 221 **Techniques of Resource Inventory** (3) Baker
Methods used to measure and evaluate natural resource potential, case studies and development of inventory technology. (Spring—evening)
- 223 **Human Resources and Regional Development** (3) Gordon
Analysis of reciprocal relationship between population and natural resources. Evaluation of impact of regional development schemes upon population imbalance. (Fall—evening)
- 243 **Urban Geography** (3) Lowe
Functional processes affecting the morphology, evolution, and areal arrangement of urban phenomena. (Spring—evening)
- 244 **City Region** (3) Lowe
Town-country interrelationships, functional character and spatial structure of the urban sphere of influence. (Fall—evening)

* A regional survey course providing an introduction to more detailed study of geographic regions. Characteristics, interrelationships, and areal distributions of natural and cultural phenomena are considered. Prerequisite: Geography 51 or equivalent. Strongly recommended for students interested in the study of specific areas are the regional courses in the departments of Economics, History, and Political Science.

265 Seminar: Geography of the Soviet Union (3)

Baclawski

Physical features, economic geography, natural and energy resources, industries. Soviet transportation system, agriculture, multinational population trends; emphasis on population patterns along borderlands, especially Sino-Soviet border. (Fall—evening)

266 Seminar: Geography of China (3)

True

Physical and economic geography; emerging industries, energy resources, transportation system. Emphasis on population "explosion"—its distribution and significance—and on regional geography, particularly on the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening)

295 Research (arr.)

Staff

May be repeated once for credit. (Fall and spring—as arranged; summer 1968)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

Geology*

Professors Geza Teleki (*Chairman*), G.V. Carroll, Charles Milton (*Research*)
 Adjunct Professors J.W. Pierce, E.G. Kauffman
 Professorial Lecturers I.G. Sohn, Nicholas Hotton, Daniel Appleman
 Associate Professors L.B. Platt, F.R. Siegel, A.G. Coates
 Associate Professorial Lecturers W.E. Maloney, P.M. Kier, M.A. Buzas, J.E. Hazel, James Papike, Isidore Zietz
 Assistant Professor R.C. Lindholm
 Assistant Professorial Lecturer W.G. Melson
 Instructor George Rabchevsky
 Lecturers D.H. Massie, J.E. Merida, D.C. Pasley, Jr.

Bachelor of Arts or Bachelor of Science with a major in Geology (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69-70. The following first-group courses must be included: Geology 1-2, 14; Chemistry 11-12; Physics 1, 2 or Biological Sciences 1-2; Mathematics 21 (for the degree of Bachelor of Arts), Mathematics 22 or Statistics 91 (for the degree of Bachelor of Science).

Required: in addition to the general requirements, pages 74-78, twenty-four semester hours in Geology beyond first-group courses for the Bachelor of Arts degree; thirty, for the Bachelor of Science degree. The work of the junior and senior years must be approved by the Department. Two foreign languages are recommended for students planning to do graduate work. Philosophy 121 and 151 are recommended as senior-year electives.

Master of Arts or Master of Science in the field of Geology.—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Geology from this University, or equivalent.

Required: the general requirements, pages 83-87, including Mathematics 22 or Statistics 91, or equivalent, for the degree of Master of Science only. Candidates must

* Staff of Instruction for the academic year 1967-68.

pass the Master's Comprehensive Examination before registration for the second half of the thesis work. A reading knowledge examination in French, German, Russian, or Spanish (with permission of Department) must be passed before the second half of the work is started.

Master of Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Geology and Chemistry).—Prerequisite: a Bachelor's degree with a major in Geology or in Chemistry from this University, or equivalent.

Required: the general requirements, pages 83–87, including Chemistry 111, 112; Geology 141, 241, 249, and Geology 245 or Chemistry 213. The Master's Comprehensive Examination must be taken before registration for the second half of the thesis work. A reading knowledge examination in a foreign language, approved by the Department of Geology or Chemistry, must be passed before the second half of the work is started.

Doctor of Philosophy fields of study in Geology: Geomorphology, Marine Geology, Mineralogy, Paleontology, Petrology, Stratigraphy, and Structural Geology.—See pages 83–85, 87–88, for requirements for the degree.

Doctor of Philosophy field of study in Geochemistry (an interdepartmental field offered by the departments of Geology and Chemistry).—See pages 83–85, 87–88, for requirements for the degree.

Bachelor of Arts in Education with a teaching field in Earth Science.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Earth Science option and the professional courses listed on pages 98, 105.

FIRST GROUP

1–2 Introductory Geology (3–3)

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Survey covering the principles of geology. Laboratory fee, \$10 a semester. (First half: fall—day; spring—evening; summer 1968. Second half: fall—evening; spring—day; summer 1968.) Staff

14 General Petrology (4)

Lecture (2 hours), laboratory and field trip (5 hours). Macroscopic study of rocks. Prerequisite: Geology 1–2 (concurrent registration for Geology 2 is accepted). Laboratory fee, \$10. (Spring—day) Carroll

91 Laboratory Techniques I (2)

Introduction to photographic procedures and techniques. Laboratory fee, \$15. (Fall—Saturday) Massie

92 Laboratory Techniques II (2)

Introduction to laboratory machinery and techniques, preparation of thin sections, grinding and polishing techniques, fossil preparation, organization and handling of collections. Laboratory fee, \$15. (Spring—Saturday morning) Collier

SECOND GROUP

101 History of Geological Sciences (3)

Development of geological and scientific thought; history of geological and related sciences. (1969–70 and alternate years) Teleki

103 Development of Scientific Thought (3)

(Summer 1968)

111-12 Mineralogy (4-4)

Carroll

A year course: credit toward a degree at this University given on completion of Geology 112. Lecture (2 hours), laboratory (5 hours). *First half:* morphological crystallography, paragenetic and systematic mineralogy. *Second half:* optical and petrographic mineralogy. Prerequisite: Geology 14 for geology majors, permission of instructor for other science students. Laboratory fee, \$12 a semester. (Academic year—day)

113 Crystallography (3)

Appleman

Lecture (2 hours), laboratory (3 hours). Point-group and space-group theory, fundamentals of crystal structure, elementary X-ray diffraction theory, application of X-ray diffraction to mineral identification. Prerequisite: Mathematics 22. Laboratory fee, \$15. (1969-70 and alternate years)

114 X-ray Mineralogy (3)

Lecture (2 hours), laboratory (3 hours). Single crystal techniques, space-group determination and mineral identification with the precession camera, principles of crystal structure analysis, crystallographic techniques in mineralogy, computer aided interpretation of diffraction data. Prerequisite: Geology 113. Laboratory fee, \$15. (1969-70 and alternate years)

115 Petrography (4)

Carroll

Lecture (2 hours), laboratory (5 hours). Study of rocks by use of the polarizing microscope. Prerequisite: Chemistry 11-12, Geology 111-12. Laboratory fee, \$12. (Fall—day)

116 Sedimentary Petrography (4)

Lindholm

Lecture (2 hours), laboratory (4 hours). Identification, classification, and interpretation of common sedimentary rocks by means of the petrographic microscope. Prerequisite: Geology 112, 163; or permission of instructor. Laboratory fee, \$12. (Spring—day)

122 Structural Geology (3)

Platt

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Genetic interpretation of geologic formations on basis of their structures, with emphasis on applications to geologic field work. Prerequisite: Geology 1-2. Laboratory fee, \$5. (Fall—day)

125 Marine Geology (3)

Pierce

Lecture and map work. Principles of oceanography and submarine geology; geology of the deep sea; topography, crustal structure, sedimentary processes, and marine environment. Prerequisite: Geology 1-2. (Spring—evening)

128 Geomorphology (4)

Teleki

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Nature and evolution of earth forms, interpretation of maps and aerial photographs. Prerequisite: Geology 1-2, 101; or permission of instructor. (Fall—day)

141 Introductory Geochemistry (3)

Siegel

Lecture (2 hours), laboratory as arranged. Principles and theories on the abundance, relationships, and distribution of the elements in various rock and mineral species. Prerequisite: Geology 115 or equivalent, Chemistry 11-12, Mathematics 21, Physics 1, 2. Laboratory fee, \$12. (Fall—day)

151-52 Invertebrate Paleontology (3-3)

Coates

Lecture and laboratory (5 hours), field trips as arranged. A systematic treatment of the invertebrate fossil groups, emphasis on the macroinvertebrates. The evolution and paleoecology of the groups will be introduced. Prerequisite: Geology 1-2. Laboratory fee, \$12 a semester. (Academic year—day)

154 Vertebrate Paleontology (3)

Hotton

Lecture (2 hours), laboratory or field as arranged. General features of vertebrate morphology and evolution as illustrated by the fossil record; problems of paleoecology and adaptation, where appropriate. (Fall—evening)

155 Paleobotany (3)

Staff

Lecture (2 hours), laboratory or field as arranged. General features of fossil plant morphology, evolution, and classification. Laboratory fee, \$12. (1969-70 and alternate years)

157 Methods in Paleontology (3)

Sohn

Introduction to principles and techniques of paleontological research, including rules of zoological nomenclature. Prerequisite: Geology 151-52. (1969-70 and alternate years)

158-59 Micropaleontology (3-3)

Sohn and Staff

Lecture and laboratory (5 hours). Classification, evolution, and paleoecology of the important microfossil groups with special reference to Foraminifera and Ostracoda, including conodonts, radiolaria, diatoms, and coccoliths. Prerequisite: Geology 151-52 or permission of instructor. Laboratory fee, \$12 a semester. (Academic year—evening)

163 Sedimentation (4)

Lindholm and Staff

Lecture (2 hours), laboratory (4 hours). Principles of sedimentation, analysis and interpretation of sedimentary processes and environment, laboratory experiments in the properties of sedimentary particles. Prerequisite: Geology 1. Laboratory fee, \$15. (Fall—day)

166 Principles of Stratigraphy (4)

Coates and Staff

Lecture (2 hours), laboratory (4 hours). Introduction to physical and biological stratigraphy. Prerequisite: Geology 151-52. (Fall—day)

172 Regional Geology (3)

Staff

Lecture, research, and discussion of major geologic or physiographic regions. Prerequisite: Geology 122. (Spring—day)

181 Oceanography I (3)

Maloney

Chemical and physical properties of sea water, movements of water masses, meteorological interrelations, ecology of marine plants and animals. Prerequisite: Mathematics 23 or equivalent, or permission of instructor. (1969-70 and alternate years)

182 Oceanography II (3)

Maloney

Boundary processes and interactions between sea water and the atmosphere, principles of dynamics and their application to motion and distribution of variables, acoustics of water masses, review of recent literature and problems. Prerequisite: Geology 181. (1969-70 and alternate years)

THIRD GROUP

- 205 Seminar in Geology (3)** Staff
Special topics each semester. May be repeated for credit. (Fall and spring—as arranged)
- 213 Advanced X-ray Crystallography (3)** Appleman
Problems in X-ray crystallography, crystal structure analysis of minerals. Laboratory fee, \$15. (Fall—day)
- 214 Advanced X-ray Mineralogy (3)** Papike
Problems in X-ray mineralogy, crystal chemistry of rock forming minerals. Laboratory fee, \$15. (Spring—day)
- 217 Advanced Sedimentary Petrography (3)** Lindholm
Discussion and petrographic study of selected sedimentary rocks. Prerequisite: Geology 112, 116, 163. Laboratory fee, \$12. (Fall—day)
- 223 Experimental and Theoretical Deformation (3)** Platt
Lectures and field trips as arranged. Experimental deformation of natural materials and theoretical analysis of the natural deformation of rocks. Prerequisite: Geology 122, Mathematics 23; or permission of instructor. (Fall—as arranged)
- 224 Advanced Structural Geology (3)** Platt
Methods of study and the hypotheses of the genesis of structurally complex rock. Problems of orogeny. (1969-70 and alternate years)
- 228 Advanced Geomorphology (3)** Teleki
Survey of the morphology of the world. (1969-70 and alternate years)
- 241 Geochemistry (3)** Siegel
Chemical composition and physical properties of sea water, chemical composition and alterations of marine sediments, thermodynamics and biochemical activity in oceans. Methods of analysis and problems of measuring. Prerequisite: Mathematics 22, Physics 51-52. Chemistry 22 is desirable. Laboratory fee, \$18. (Spring—day)
- 242 Experimental Geochemistry (3)** Siegel
Recent advances in geochemistry, instrumental methods and their application. Special topics. Does not repeat itself and can be repeated for credit. Prerequisite: Chemistry 111-12. (Spring—as arranged)
- 244 Isotope Geology (3)**
Nuclear theory, isotopic variations due to radioactivity and fractionation, geochronometric measurements, and meteorites. Prerequisite: Geology 141 or permission of instructor. (Spring—evening)
- 245 Thermodynamics for the Geologist (2)** Melson
Nature and definition of thermodynamics and the meaning of chemical equilibrium. Methods of graphical portrayal, significance and calculation in equilibrial relations and systems. Prerequisite: Mathematics 22. Mathematics 23 and Physics 51-52 are desirable. (1969-70 and alternate years)

- 246 Physical Chemistry in Relation to Geologic Problems (2)** Melson
The origin of the atmosphere, equilibria in sea water, diagenesis, equilibrium in metamorphic rocks, composition and temperature-pressure relations in ore solutions, and the mechanism of ore formation; thermodynamics of magma. Prerequisite: Geology 245. (1969-70 and alternate years)
- 249 Seminar: Geochemistry (2)** Siegel
Independent topics each semester; may be repeated for credit. (Fall and spring—as arranged)
- 253 Applied Paleontology (3)** Hazel and Staff
Wide ranging treatment of the use of fossils in several fields including biostratigraphy, paleobiogeography, paleotemperature; paleochemical analyses and the solving of particular geologic problems. Prerequisite: Geology 151-52. (Fall—evening)
- 254 Interpretive Paleontology (3)** Kauffman and Staff
Comparative study of form and function in fossil and recent organisms as related to the interpretation of evolution. Prerequisite: Geology 151-52. (Spring—day)
- 255 Population Paleoecology (3)** Buzas
Characteristics of populations applicable to the fossil record. Subject matter includes ecosystem concept, habitat, Hutchinsonian niche, life-death-size frequency distributions, competitive exclusion principle, spatial distributions, relative abundance and diversity, quantification of community biofacies. Prerequisite: Geology 151-52, Statistics 91; or permission of instructor. (1969-70 and alternate years)
- 295 Research (arr.)** Staff
Research on problems approved by the Staff. Open to qualified students with advanced training. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 299-300 Thesis Research (3-3)** Staff
(Academic year—as arranged; summer 1968)

FOURTH GROUP

- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—day and evening; summer 1968)
- 399 Dissertation Research (arr.)** Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Germanic Languages and Literatures*

Professors W.K. Legner, J.C. King
Associate Professor Klaus Thoenelt

* Staff of Instruction for the academic year 1967-68.

Assistant Professors Carl Steiner, L.G. Seeger (*Chairman*)
Lecturers Blanche Gardner, Lucie Kressley, Charlotte Craig, Margaret Guenther

Bachelor of Arts with a major in Germanic Languages and Literatures (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including German 9-10 and 51-52.

Required: in addition to the general requirements, pages 74-78, a minimum of twenty semester hours in German courses above the first group, including German 179-80; reasonable proficiency in speaking and writing German; History 39-40 or equivalent; six semester hours in Philosophy selected with the approval of the adviser. Majors in German are strongly advised to study French.

Master of Arts in the field of Germanic Languages and Literatures.—Prerequisite: a Bachelor of Arts degree with a major in Germanic Languages and Literatures from this University, or equivalent.

Required: the general requirements, pages 83-87, including a reading knowledge of French and a thesis in the field of German literature or linguistics.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, Russian, or Spanish at this University, or equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 83-87, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, General Course in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Slavic, Spanish, Speech, and Statistics listed on pages 287-89.

Doctor of Philosophy fields of study in Germanic Languages and Literatures: Old High German Language and Literature, Old Norse Language and Literature, Middle High German Language and Literature, Early New High German Language and Literature, Classicism, Romanticism, Realism, 20th Century German Literature, and Linguistic Analysis.—See pages 83-85, 87-88, for requirements for the degree.

Bachelor of Arts in Education with a teaching field in German.—Prerequisite: the Education curriculum, pages 71-72.

Required: the German option and the professional courses listed on pages 100, 105.

Placement Examination: a standardized placement examination given before registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination, assignment is made to the appropriate course, with credit assigned on the usual basis.

FIRST GROUP

1-2 First-year German (3-3)

Staff

A year course: credit toward a degree at this University given on completion of German 2. Essentials of German grammar; translation of easy prose. Three classroom periods a week plus one period of aural-oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (*First half:* fall—day and evening; spring—day; summer 1968. *Second half:* fall—day; spring—day and evening; summer 1968.)

***3-4 Second-year German (3-3)**

Staff

A year course: credit toward a degree at this University given on completion of German 4. Selections from modern German prose; continuation and review of grammar. Three classroom periods a week plus one period of aural-oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: German 1-2 or two years of high school German. (First half: fall—day and evening; spring—day; summer 1968. Second half: fall—day; spring—day and evening; summer 1968.)

***9-10 German Conversation and Composition (3-3)**

Steiner, Thoenell

(Academic year—day)

47 Beginning German for Reading Examination Candidates (0)

Staff

Specifically for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, \$180. (Fall and spring—evening; summer 1968)

49 German Readings for Nonmajor Students (3)

Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or equivalent. (Fall and spring—evening; summer 1968)

***51-52 Introduction to German Literature (3-3)**

Seeger

Prerequisite: German 4 or equivalent. (Academic year—day)

SECOND GROUP**103-4 Goethe's "Faust"—Parts I and II (3-3)**

Legner

(1969-70 and alternate years)

131-32 18th Century German Literature (3-3)

Thoenell

Enlightenment, Storm and Stress, Classicism. (1969-70 and alternate years)

141-42 19th Century German Literature (3-3)

Steiner

Romanticism, Biedermeier, Young Germany, Realism. (1968-69 and alternate years: academic year—day)

151-52 20th Century German Literature (3-3)

Seeger

(1968-69 and alternate years: academic year—evening)

161-62 Special Readings in German Literature for Majors (3-3)

Staff

Independent study only. (Not offered 1968-69)

179-80 Advanced Composition (1-1)

King, Legner

For undergraduate and graduate majors. (Academic year—day)

THIRD GROUP**201-2 Middle High German (3-3)**

Legner

(1969-70 and alternate years)

* With permission of instructor, German 9-10 or 51-52 may be taken concurrently with German 4.

- 205-6 **Gothic (3-3)** Legner
Introduction to the comparative study of Germanic languages. (Either 205-6 or 229 and 230 will be offered 1968-69, subject to demand.)
- 209-10 **Old High German (3-3)** King
(1968-69 and alternate years: academic year—evening)
- 213-14 **Old Norse (3-3)** Allee
(1969-70 and alternate years)
- 223-24 **Linguistic Analysis of Modern German (3-3)** King
Treatment of phonetics, phonemics, morphology, and syntax. (Not offered 1968-69)
- 225-26 **Seminar: Linguistics (3-3)** King, Allee
Bibliography, methodology, readings, and research problems. (1969-70 and every third year)
- 227-28 **Sanskrit—Introduction to Indo-European Linguistics (3-3)** King
Old Indic language and literature. (Not offered 1968-69)
- 229 **15th and 16th Century German Literature (3)** Legner
Transition from chivalric to bourgeois literature. The eras of Humanism and the Reformation as reflected in the principal literary works. (Either 205-6 or 229 and 230 will be offered 1968-69, subject to demand.)
- 230 **17th Century German Literature (3)** Legner
Imitation of foreign models. The literary societies. Preciosity. The beginnings of realism in the novel. Pietism. (Either 205-6 or 229 and 230 will be offered 1968-69, subject to demand.)
- 231-32 **German Classicism (3-3)** Thoenelt
Advanced study and critique of the classical literature of the Goethe era. Prerequisite: German 131-32 or equivalent. (1968-69 and alternate years: academic year—evening)
- 241-42 **Seminar: German Romanticism (3-3)** Thoenelt
Treatment of individual writers, groups, motifs, and tendencies. (1969-70 and alternate years)
- 251-52 **Seminar: Studies in 20th Century German Literature (3-3)** Seeger
Special projects in fiction, drama, poetry, and criticism. (1969-70 and alternate years)
- 271-72 **Seminar: German Literature (3-3)** Steiner
Bibliography, methodology, readings, and research problems. (Not offered 1968-69. Topic for 1969-70: *Realistic drama, 1830-90.*)
- 299-300 **Thesis Research (3-3)** Staff
Required of all candidates for the Master's degree in German. (Academic year—as arranged)
- FOURTH GROUP**
- 398 **Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged)

399 **Dissertation Research** (arr.)

Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged)

Staff

Greek

See "Classics."

Health Care Administration*

Professors F.H. Gibbs, Leon Gintzig (*Chairman*)

Professorial Lecturers Clark Tibbitts, C.U. Letourneau, M.J. Taves, Louis Block

Associate Professor Lloyd Bartholomew

Assistant Professor F.S. Rojo

Assistant Professorial Lecturers Marjorie Quandt, W.A. Parker, G.E. Morris

Instructor L.W. Katz

Master of Business Administration or Master of Public Administration in Health Care Administration fields (Hospital Administration, Administration of Long-term Care Facilities, Health Records Administration).—See pages 128–31, 132–33.

Graduate Certificate in Health Care Administration.—See page 137.

Doctor of Business Administration or Doctor of Public Administration in the field of Health Care Administration.—See pages 138–39.

SECOND GROUP

153–54 **Survey of Health Care Organization and Procedures** (3–3)

Primarily for students who wish an over-all knowledge of organization and procedures used in health care policies, hospitals, and long-term care facilities. Not open to Master's candidates in Health Care Administration.
(Academic year—evening)

THIRD GROUP

202 **Introduction to Health Care Administration** (3) Bartholomew, Parker

Lecture and discussion (2 hours), laboratory (2 hours). Survey of state, national, and community health services; includes medical terminology, communicable diseases, environmental sanitation, and biostatistics.
(Fall—day and evening; spring—as arranged)

203 **Organization and Management** (3)

Rojo, Bartholomew

Lecture and discussion (2 hours), laboratory (2 hours). History and current character of institutional health care. Organizational functions and structure of various kinds of facilities related to health care administration. Prerequisite or concurrent registration: Business and Public Administration 201. (Fall—day; spring—as arranged; summer 1968)

204 **Planning and Support Agencies and Associations** (3)

Functions performed and special support techniques of hospital, medical, public health, nursing home, planning, educational, and similar associations. (Not offered 1968–69)

Staff

* Staff of Instruction for the academic year 1967–68.

- 205 Hospital Management Procedures (3)** Bartholomew, Rojo, Letourneau
Lecture and discussion (2 hours), laboratory (2 hours). Departmental administration. Survey of hospital law; hospital forms, procedures, and systems; and hospital programs pertaining to disaster relief, safety, fire prevention. (Fall—as arranged; spring—day)
- 206 Case Studies in Health Care Administration (3)** Gintzig, Gibbs
Discussion (2 hours), laboratory (2 hours). General ideas about administration applied to practical cases. Emphasis on policy making, planning, controlling, and organizing. Prerequisite: Business and Public Administration 201 and Health Care Administration 203. (Fall and spring—day)
- 207 Management Analysis in Health Care Institutions (3)** Rojo, Gintzig
Lecture (2 hours), laboratory (2 hours). Basic investigation and problem-solving techniques, including various methods of collecting, analyzing, reporting, and using information that can be made available to administrators of hospitals and other medical care institutions. (Fall and spring—as arranged)
- 209 Health Care Economics and Financial Management (3)** Katz
(Formerly *Health Care Economics*)
Lecture (2 hours), laboratory (2 hours). Economic and financial analysis of the interactions between consumers of health care, providers of health care, and public and private prepayment and insurance programs. Industry price structure and the long- and short-term capital requirement of health care institutions. (Fall—day; spring—day and evening)
- 212 Planning and Constructing Health Care Facilities (3)** Bartholomew, Block
Lecture (2 hours), laboratory (2 hours). Regional and specific aspects of long- and short-term health care planning, designing, constructing, purchasing, equipping, and supplying. Prerequisite: Health Care Administration 202 and 203. (Spring—as arranged)
- 213 Administration of Health Care Systems (3)** Gintzig
Various patterns of hospital and health care such as church ownership, proprietary, group practice, Salvation Army, governmental, industrial, unions, nursing homes, community, and their special characteristics. (Fall or spring—as arranged)
- 221-22 Medical Science and Medical Terminology (3-3)** Quandt
Fundamentals of medical science and medical essentials. Includes a study of terms related to all areas of medical science, hospital service, and the paramedical specialties. (Academic year—evening)
- 223-24 Introduction to Health Records Administration (3-3)** Quandt
Lecture and discussion (2 hours), laboratory (2 hours). History of medical records, report preparation, coding and indexing procedures, ethics, methods of securing and preserving medical records, and medical record practices and procedures. (Academic year—evening)
- 225-26 Health Records Administration (3-3)** Quandt
Lecture and discussion (2 hours), laboratory (2 hours). Research techniques and qualitative analysis and ethics pertaining to medical records.

- Problems encountered in medical record departments in medical facilities.
(Academic year—evening)
- 229 **Health Records Administration Internship (3)** Staff
Four-month internship in approved medical facilities under qualified medical records administrators who provide practical experience and practice in the use of their standard equipment.
- 250 **Administration for Mental Care (3)** Morris
Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, mental health clinics, and others.
(As arranged)
- 260 **Administration for Long-term Care Facilities (3)** Staff
Survey of medical and nursing procedures designed for administrators of long-term care facilities, including nursing homes and facilities for the aged. (Fall—day)
- 261 **Business Procedures for Long-term Care Facilities (3)** Staff
Special application to administration of facilities for long-term care, including nursing homes and homes for the aged. (Spring—evening)
- 265-66 **Readings in Long-term Care Administration (3-3)** Staff
Advanced studies in selected aspects of administration of long-term care facilities, including nursing homes, homes for the aged, and others.
(Fall or spring—as arranged)
- 267 **Social Gerontology for the Administrator (3)** Tibbitts, Taves
Special characteristics of the elderly with which administrators of long-term care facilities should be acquainted. (Fall—day and evening)
- 270 **Research in Health Care Administration (3)** Bartholomew, Gintzig
Field research. Primarily for doctoral candidates; open to other graduate students with consent of instructor. (Fall or spring—as arranged; summer 1968)
- 285-86 **Readings in Health Care Administration (3-3)** Staff
Supervised readings in some special areas or subdivisions of health care administration. Primarily for doctoral candidates; open to other students by arrangement. (Academic year—as arranged)
- 287 **Seminar: Integration of Health Care Administration (3)** Staff
Primarily for doctoral candidates; open to other students by arrangement.
(Not offered 1968-69)
- 288 **Seminar: Field Problem Studies in Health Care Administration (3)** Staff
Selected administrative issues and problems arising in health care facility situations. Primarily for doctoral students; open to other students by arrangement. (Fall or spring—as arranged)
- 293-94
-95 **Residency I (3-3-3)** Bartholomew, Katz, Gibbs, Gintzig, Rojo
Twelve-month residency, beginning each year June 1 or July 1. Work experience under a qualified preceptor, periodic written progress reports, and a written major report.

296-97

-98 Residency II (3-3-3)

Gintzig

For selected students who take a second twelve-month residency; begins June 1 or July 1 each year.

299-300 Thesis Research (3-3)

Staff

FOURTH GROUP**398 Advanced Reading and Research (arr.)**

Gintzig, Bartholomew

Limited to doctoral students preparing for the general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Gintzig, Bartholomew

Limited to doctoral candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

History*

Professors Wood Gray, H.M. Merriman, R.H. Davison, R.B. Thompson, R.C. Haskett, R.P. Sharkey (*Chairman*), Mario Rodriguez, H.M. Sachar
Professorial Lecturer R.P. Multhauf
Associate Professors C.J. Herber, R.W. Kenny, P.P. Hill, W.R. Johnson
Assistant Professors Lois Schwoerer, A.D. Andrews II, R.A. Hadley, Linda DePauw, Richard Thornton

Bachelor of Arts with a major in History (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69, including History 39-40 or 91-92 and 71-72.

Required: the general requirements, pages 74-78, and the passing of the History major examination at the end of the senior year.

The major, and the major examination which attests it, is centered on the study of the Mediterranean rise, European development, and trans-Atlantic spread of Western Civilization, its interaction with other civilizations in a world context, and its continuing challenges to the present day. Under the guidance of an adviser the student will arrange his program in History to attain, insofar as possible, a balanced evaluation of (1) the rise of civilization in Europe from its Classical origins to the eve of the French Revolution; (2) the historic problems of modern Europe in the age of industry and ideology since 1789; (3) the political, social, economic, and cultural forces of the United States in their world setting since 1607; and (4) the nature and development of civilization in the principal areas outside of the North Atlantic community. A six-hour research seminar to give training in fundamental techniques is a required part of each major's program and a proseminar (History 199-200) is offered as a means of integrating the student's understanding of the continuity of Western civilization in its world context. For details relating to the administration and content of the major, see the pamphlet on this subject which is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the Department of History.

An Honors Program, inaugurated in the spring semester of 1968, centers around the preparation of a Senior Honors Thesis. Application to this Program must be made shortly before completion of the first semester of the junior year.

* Staff of Instruction for the academic year 1967-68.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for History majors.

Bachelor of Arts with a major in Latin American Studies (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, see page 69.

Required: the general requirements, pages 74–78, and the passing of the Latin American Studies major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes political and social history, economic development, governmental structures and international relations, and the principal literary works and writers of the Latin American republics. The Department of History provides a proseminar (History 197–98) intended to assist the student in preparing himself for the major examination. For further details, see the pamphlet, which is available in the Office of the Dean of Columbian College of Arts and Sciences.

Master of Arts in the field of History.—Prerequisite: the degree of Bachelor of Arts with a major in History (high B average or better) from this University, or equivalent, and the approval of the Department. Applicants from other institutions must present scores on the Graduate Record Examination with the Advanced Test in History and arrange for four persons, preferably former instructors, to send letters of recommendation to the Office of the of the Graduate School of Arts and Sciences.

Required: the general requirements, pages 83–87. Of the twenty-four semester hours of required second- and third-group courses (exclusive of the thesis), at least six must be in third- or fourth-group history courses; a maximum of six may be in a closely related field outside the Department of History as approved by the Department. Master's candidates are responsible for arranging with instructors of second-group courses for extra work, in order to receive graduate credit for such courses.

Master of Arts in the field of Latin American Studies.—Prerequisite: the degree of Bachelor of Arts with a major in Latin American Studies from this University, or equivalent.

Required: the general requirements, pages 83–87. Course work and the comprehensive examinations will embrace political and social history, governmental structures and international relations, economic development, and principal literary works of Latin America. The thesis may be written in any one of these four fields. All courses must be approved in advance by the Adviser.

Doctor of Philosophy fields of study in History: (1) *American History* (Colonial, Early National, Political, Diplomatic, Economic, Religious, Social), (2) *European History* (Classical Greek and Roman, Medieval, Early Modern, Modern, Economic, Diplomatic, English, French, German, Balkan, Iberian), (3) *Russian History*, (4) *Latin American History* (Colonial, National, Central American, Brazilian), (5) *Asian History* (Near Eastern, Modern Chinese, Modern Japanese), (6) *Canadian History*, (7) *Jewish History* and (8) *History of Science.*—See pages 83–85, 87–88, for requirements for the degree.

Doctor of Philosophy fields of study in American Thought and Culture.—See page 175.

Doctor of Philosophy fields of study in International Relations combine work in Economics, History, and Political Science.

Bachelor of Arts in Education with a teaching field in History.—Prerequisite: the Education curriculum, pages 71–72.

Required: the History option and the professional courses listed on pages 100–101, 105.

Departmental prerequisite: History 39–40 or 91–92 is prerequisite to courses 108 through 158 and 187 through 196; History 71–72, to courses 167 through 184; either History 39–40, 71–72, or 91–92, to courses 162 through 166. Prerequisite to History 105–6 is either History 39–40, 91–92, or a background in a science.

FIRST GROUP

- 39-40 **European Civilization in Its World Context (3-3)** Staff
 Primarily for freshmen. *First half:* political, social, economic, and cultural history from ancient times to early modern era. *Second half:* from early modern era to present. Students cannot receive credit for both History 39-40 and 91-92. (Academic year—day and evening; summer 1968)

- 71-72 **Civilization of the United States (3-3)** Staff
 Primarily for sophomores. *First half:* political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half:* from 1865 to present. (Academic year—day and evening; summer 1968)

- 91-92 **World Civilizations (3-3)** Thompson
First half: major civilizations of the world to 1500. *Second half:* Eurocentric and world civilization since 1500. Students cannot receive credit for both History 39-40 and 91-92. (Academic year—day)

SECOND GROUP

- 105-6 **History of Science (3-3)** Multhaupt
First half: ancient natural philosophy and growth of special sciences through the 17th-18th century scientific revolution. *Second half:* scientific development from the mid-18th century to the scientific revolution of the early 20th century. Prerequisite: History 39-40 or a background in Science. (Academic year—evening)

- 108 **The Ancient Near East and Egypt to 600 A.D. (3)** Hadley
 Survey of Egyptian, Mesopotamian, Anatolian, West Semitic, and Iranian civilizations from the Neolithic period to the Islamic conquest. (Spring—evening)

- 109 **Early Aegean and Greek Civilizations to 200 B.C. (3)** Hadley
 (Formerly Ancient History)
 Neolithic background; Bronze age—Minoan, Helladic, and Mycenaean civilizations; classical Greek civilization to the eve of the Roman conquest. (Fall—day)

- 110 **The Roman World to 455 A.D. (3)** Hadley
 (Formerly Ancient History)
 Prehistoric Italy; rise and decline of the Roman Empire and Latin civilization; cultural, social, and political developments in the Greek world under Roman rule. (Spring—day)

- 111-12 **Medieval History (3-3)** Andrews
First half: from 10th to 12th century. *Second half:* primarily 13th century. (Academic year—day)

- 113 **Early Middle Ages (3)** Andrews
 Mediterranean region from 4th to 10th century. (Not offered 1968-69)

- 121 **The Renaissance in Western Europe (3)** Schwoerer
 Political, economic, intellectual, and cultural features of the Renaissance, 14th-16th centuries. Focus on Italy, but with attention to developments in France and England. (Fall—day)

131-32 History of Germany (3-3)

Herber

Political, social, and cultural development. *First half:* from Reformation to 1871. *Second half:* from 1871 to present. (Academic year—day)

138 History of the Comintern (3)

Thornton

The Communist Third International from the First World War to the present in relation to Russian and world communist movements. (Fall—evening; summer 1968)

139-40 World History in the 20th Century (3)

Sachar

First half: from 1914 to the Munich settlement of 1939. *Second half:* from Munich to present. (Academic year—day)

141-42 History of France (3-3)

Herber

Political, social, and cultural. *First half:* from earliest times to 1815. *Second half:* from 1815 to present. (Not offered 1968-69)

145-46 History of Russia (3-3)

Thompson

Rise and revolution of Russia. *First half:* the Old Regime, 860-1881. *Second half:* Revolution and Soviet rule since 1881. (Academic year—day)

***147 Economic History of Europe (3)**

Sharkey

Economic development since the Middle Ages; emphasis on the period following the Industrial Revolution. Evolution of capitalism and its impact upon the societies of Europe. (Spring—day; summer 1968)

149-50 European Diplomatic History (3-3)

Davison

The European state system; diplomatic practices and relations since the Congress of Vienna; emphasis on policies and actions of the great powers and their statesmen. *First half:* to 1890. *Second half:* since 1890. Students cannot receive credit for both History 150 and 157. (Academic year—day; summer 1968—History 150)

151-52 History of England and Great Britain (3-3)

Kenny

Development of English civilization and its impact on Western culture. *First half:* to 1689. *Second half:* since 1689. (Academic year—day)

153 Tudor England (3)

Kenny

Aspects of the constitutional, social, intellectual, and religious development of England, 1485-1603. (Fall—day)

154 Stuart England (3)

Schwoerer

Main currents from 1603 to 1714. Emphasis on the Grand Rebellion and the Glorious Revolution; attention to relations with continental Europe. (Spring—day)

157 20th Century European Diplomatic History (3)

Sachar

(Formerly History 153)

The main currents, with necessary 19th century background. Students cannot receive credit for both History 157 and 150. (Fall—day)

* An interdepartmental course offered by the departments of History and Economics. Students may register in either department.

- 158 Modern Jewish History (3)** Sachar
(Formerly History 154)
A secular history of the Jewish people from the 18th century to the present state of Israel, with particular emphasis on European political and economic influences. (Spring—day)
- 162 History of Spain and Portugal (3)** Rodriguez
Political, social, and cultural aspects. (Fall—day)
- 163-64 History of Latin America (3-3)** Rodriguez
Political, social, and cultural development. *First half:* through independence. *Second half:* the national period. (Academic year—day; summer 1968)
- 165 History of Brazil (3)** Rodriguez
Political, social, and cultural aspects. (Spring—day)
- 166 History of Mexico (3)**
(Not offered 1968-69)
- 167 American Colonial History (3)** Haskett
(Formerly History 170)
Settlement of colonies, development of provincial institutions, and emergence of American civilization in the 17th and 18th centuries. (Spring—day)
- 169 The American Revolution (3)** DePauw
The crisis of the British Empire after the Seven Years War, the War for Independence, the Confederation period, the making and ratification of the Federal Constitution. (Fall—day)
- 170 U. S. Early National History (3)** Hill
Political, diplomatic, economic, and social history of the early republic, 1789-1840. (Spring—day)
- 171-72 U. S. Social History (3-3)** Gray
First half: daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607-1861. *Second half:* the Urban-Industrial Era from 1861 to present. (Academic year—day)
- 173 Representative Americans (3)** Gray
Significant and pivotal personalities in government, business, science, religion, journalism, the arts, and social reform. (Fall—day; summer 1968)
- 175-76 U. S. Political History (3-3)** Haskett
First half: to the Civil War. *Second half:* Civil War to New Deal. (Academic year—day; summer 1968—History 176)
- 177 The Ante-bellum South (3)** DePauw
(Formerly The South)
Development of the South as a section in the ante-bellum period. (Spring—day)

178 The Civil War (3)

Causative factors leading to Civil War; social, political, military, economic, and diplomatic aspects of the War; immediate and long-range effects on American life. (Not offered 1968-69)

***179-80 U. S. Economic History (3-3)**

Sharkey

Process of economic growth from Colonial times to the present. Development of various sectors in the economy—such as agriculture, transportation, manufacturing, and banking—and their interdependence. *First half*: 1607-1865. *Second half*: from 1865 to present. (Academic year—evening)

181-82 U. S. Diplomatic History (3-3)

Merriman, Hill

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; activities of American secretaries of state and diplomatic agents. *First half*: to 1898. *Second half*: since 1898. (Academic year—day; summer 1968—History 182)

183 Oversea Expansion of the United States (3)

Merriman

Political, economic, social, and cultural life of our outlying possessions. (Not offered 1968-69)

184 Canada and the United States (3)

Merriman

Historical background and main trends in the relationship of the two English-speaking peoples of North America. (Not offered 1968-69)

187 History of Modern China (3)

Johnson

China since 1840, particular attention to political developments. (Fall—evening; summer 1968)

188 History of the Chinese Communist Movement (3)

Thornton

Survey of the leadership, ideology, structure, and operation of the Communist Party of China from its founding to the present. (Spring—evening)

189 History of India (3)

Thompson

Civilization of India and her neighbors from the beginnings to independence. (Not offered 1968-69)

191-92 Senior Honors Thesis (3-3)

Staff

Required of undergraduate honors candidates in history. (Academic year—as arranged)

193 History of the Near East (3)

Davison

Byzantine, Arab, Persian, and Islamic backgrounds; rise and decline of the Ottoman Empire; action of European powers in the area; Ottoman breakup into the Turkish Republic and other successor states. (Fall—day; summer 1968)

195-96 History of East Asia (3-3)

Johnson

Civilizations of China and Japan; emphasis on cultural development and social organization. *First half*: beginnings to about 1800. *Second half*: traditional societies on the eve of the modern era, their responses to Western cultural influences since mid-19th century. (Academic year—day)

* Interdepartmental course offered by departments of History and Economics. Students may register in either department.

197-98 Proseminar: Latin American Studies (3-3)

Readings for coordination and review. Open only to majors in Latin American Studies. (Academic year—as arranged)

199-200 Proseminar: Readings for the History Major (3-3)

Staff

Limited to senior history majors. Readings and discussions on major trends in the history of Western civilization in their world setting; representative selections from the classics of historical literature. Students cannot receive credit for both History 199-200 and 201-2. (Academic year—day)

THIRD GROUP

Prerequisite to all third-group History courses: the appropriate second-group preparation and consent of instructor.

201-2 History and Historians (3-3)

Staff

Students cannot receive credit for both History 201-2 and 199-200. (Academic year—as arranged)

203-4 Research Seminar (3-3)

Staff

Prerequisite: Departmental approval. (Academic year—as arranged)

205-6 Seminar: Modern History of Eastern Europe (3-3)

Petrov

East Central and Southeastern Europe in the 19th and 20th centuries. *First half:* to the mid-1930's. *Second half:* to the communist take-over (1948). (Academic year—day)

207 Seminar: Communist Party of the Soviet Union (3)

Ploss

Evolution of the communist movement of the Soviet Union. Comintern, Cominform, and other fundamentals of international communist organization. Selected case studies of individual congresses of the CPSU. (Spring—day)

208 Research Seminar: History of the Comintern (3)

Thornton

History of the world communist movement from 1919 to the present. (Fall—evening; summer 1968)

209-10 Seminar: Ancient History (3-3)

Hadley

Prerequisite: History 108, 109, and 110; or equivalent. (Academic year—day)

211-12 Seminar: Medieval History (3-3)

Andrews

Prerequisite: History 111-12 or equivalent. (Academic year—day)

237 Seminar: Soviet Foreign Policy, 1917-1953 (3)

Petrov

Revolutionary concept of diplomacy. Parallel instruments of foreign policy during the era of "capitalist encirclement," 1917-1939. From Nazi-Soviet partnership to the alliance with the West, 1939-1945. Foreign policies of the cold war, 1945-1953. (Fall—day)

241-42 Research Seminar: Modern European History (3-3)

Herber

Prerequisite: appropriate preparation and consent of instructor. (Academic year—day)

- 245-46 **Research Seminar: Russia and Europe (3-3)** Thompson
Prerequisite: History 145-46 or equivalent. (First half: fall—day. Second half: not offered 1968-69.)
- 249-50 **Research Seminar: European Diplomatic History (3-3)** Davison
Prerequisite: History 149 or 150, or equivalent. Reading knowledge of French or German required. (First half: fall—day. Second half: not offered 1968-69.)
- 251-52 **Research Seminar: English History (3-3)** Schwoerer
Prerequisite: History 151-52 or equivalent. (Academic year—day)
- 261-62 **Research Seminar: Latin American History (3-3)** Rodriguez
Prerequisite: 6 semester hours selected from History 162, 163-64, 165, 166. (Academic year—evening)
- 271-72 **Research Seminar: U.S. Social History (3-3)** Gray
Prerequisite: History 171-72 or equivalent. (First half: not offered 1968-69. Second half: spring—day.)
- 275-76 **Research Seminar: U.S. Political History (3-3)** Haskett
Prerequisite: History 175-76 or equivalent. (Academic year—day; summer 1968—History 276)
- 281-82 **Research Seminar: U.S. Diplomatic History (3-3)** Merriman
Prerequisite: History 181-82 or equivalent. (First half: fall—day. Second half: not offered 1968-69.)
- 283-84 **Research Seminar: Recent U.S. History (3-3)** Hill, DePauw
Prerequisite: History 181-82 or equivalent. (Not offered 1968-69)
- 285-86 **Research Seminar: U.S. Early National Period (3-3)** DePauw, Hill
Prerequisite: History 175 or 181, or equivalent. (First half: not offered 1968-69. Second half: spring—day.)
- 288 **Research Seminar: History of the Chinese Communist Movement (3)** Thornton
History of the relations between the Communist Party of China and the Comintern. (Spring—day)
- 291 **Research Seminar: 20th Century Problems—Era of World War I (3)** Sachar
(Fall—day; summer 1968)
- 292 **Research Seminar: 20th Century Problems—Era of World War II (3)** Sachar
(Spring—day)
- 293-94 **Research Seminar: the Modern Near East (3-3)** Davison
Prerequisite: History 193 or equivalent. (First half: not offered 1968-69. Second half: spring—day.)
- 295-96 **Research Seminar: the Modern Far East (3-3)** Johnson
Prerequisite: History 195-96 or equivalent. (First half: not offered 1968-69. Second half: spring—day.)

299-300 Thesis Research (3-3)

Staff

Required of all Master's candidates in history. (Academic year—as arranged; summer 1968)

FOURTH GROUP

Prerequisite to all fourth-group History courses: the appropriate second-group preparation and consent of instructor.

Fourth-group History courses are limited to graduate students; but they are primarily for doctoral candidates.

311-12 Readings in Medieval History (3-3)

Andrews

(Academic year—as arranged)

341-42 Readings in Modern European History (3-3)

Davison

(Not offered 1968-69)

345-46 Readings in Russian History (3-3)

Thompson

(First half: not offered 1968-69. Second half: spring—day.)

351-52 Readings in English History (3-3)

Kenny

(First half: not offered 1968-69. Second half: spring—day.)

361-62 Readings in Latin American History (3-3)

(Not offered 1968-69)

371-72 Readings in American Social History (3-3)

Gray

(Academic year—day; summer 1968—History 371)

375-76 Readings in U.S. Political History (3-3)

Haskett

(First half: fall—day. Second half: not offered 1968-69.)

***379-80 Readings in Economic History (3-3)**

Sharkey

(Academic year—evening)

381-82 Readings in American Diplomatic History (3-3)

Merriman

(First half: fall—day. Second half: not offered 1968-69.)

395-96 Readings in Modern Far Eastern History (3-3)

Johnson

(First half: fall—day. Second half: summer 1968.)

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged)

* Interdepartmental course offered by departments of History and Economics. Students register in either department.

Institute for Sino-Soviet Studies

MEMBERS OF THE INSTITUTE

Kurt London (*Director*), F.H. Michael (*Associate Director*), Joseph Baclawski, C.F. Elliott, R.M. Field, Matthew Gallagher, Bernard Gordon, Andrew Gyorgy, John Hardt, H.C. Hinton, Tao-tai Hsia, Tso-liang Hsiao, W.R. Johnson, W.H. Kraus, Lothar Metzl, G.A. Olkhovsky, Vladimir Petrov, Sidney Ploss, Bernard Ramundo, Chung-wen Shih, R.B. Thompson, Richard Thornton, Philip True, R.K. White, R.Y. Yin

The Institute for Sino-Soviet Studies offers specialized graduate study in the School of Public and International Affairs. Students who lack background in Soviet and Chinese studies are required to take undergraduate courses selected by the adviser as prerequisite to graduate work.

For description of the objectives and programs of the Institute, see pages 151-53.

ECONOMICS

267 Seminar: Soviet Economy (3)

Development of the Soviet-type economy. Organization, policies, and problems: monetary, fiscal, production, allocative, foreign trade, economic growth. Workshop: case studies on sectoral or problem areas. Prerequisite: graduate status; Economics 101, 102, 133, and 134, or equivalent; and permission of instructor. (Fall—evening)

Hardt

268 Seminar: Economic Theory and Development in Communist Countries (3)

Appraisal of the Soviet-type model for economic development in the institutional framework of Soviet and other communist processes of economic development. Workshop: case studies on Eastern Europe, Chinese and other communist economies. Prerequisite: graduate status; Economics 101, 102, 133, and 134, or equivalent; and permission of instructor. (Spring—evening)

Hardt

269 Economy of Communist China I (3)

Analysis of organization, operation, policies, and problems of the economy under communism. (Fall—evening)

Yin, Field
Development

270 Economy of Communist China II (3)

Continuation of Economics 269, examining critical problems of development. Prerequisite: Economics 269 or permission of instructor. (Spring—evening)

Yin, Field

EDUCATION

281 Seminar: Education in the Soviet Union (3)

History of Soviet education; comparison of current American and Soviet education; relationship between Soviet education and Soviet life; type of society and citizen Soviet leaders try to create, conditions which foster or impede their efforts. (Not offered 1968-69)

282 Seminar: Education in Communist China (3)

(Not offered 1968-69)

GEOGRAPHY

- 265 Seminar: Geography of the Soviet Union (3) Baclawski
Physical features, economic geography, natural and energy resources, industries. Soviet transportation system, agriculture, multinational population trends; emphasis on population patterns along borderlands, especially Sino-Soviet border. (Fall—evening)

- 266 Seminar: Geography of China (3) True
Physical and economic geography; emerging industries, energy resources, transportation system. Emphasis on population "explosion"—its distribution and significance—and on regional geography, particularly on the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening)

HISTORY

Prerequisite: appropriate preparation in second-group History courses and consent of instructor.

- 205-6 Seminar: Modern History of Eastern Europe (3-3) Petrov
East Central and Southeastern Europe in the 19th and 20th centuries. *First half:* to the mid-1930's. *Second half:* to the communist take-over (1948). (Academic year—day)

- 207 Seminar: Communist Party of the Soviet Union (3) Ploss
Evolution of the communist movement of the Soviet Union. Comintern, Cominform, and other fundamentals of international communist organization. Selected case studies of individual congresses of the CPSU. (Spring—day)

- 208 Research Seminar: History of the Comintern (3) Thornton
History of the world communist movement from 1919 to the present. (Fall—evening; summer 1968)

- 237 Seminar: Soviet Foreign Policy, 1917-1953 (3) Petrov
Revolutionary concept of diplomacy. Parallel instruments of foreign policy during the era of "capitalist encirclement," 1917-1939. From Nazi-Soviet partnership to the alliance with the West, 1939-1945. Foreign policies of the cold war, 1945-1953. (Fall—day)

- 245 Research Seminar: Russia and Europe (3) Thompson
Prerequisite: History 145-46 or equivalent. (Fall—day)

- 288 Research Seminar: History of the Chinese Communist Movement (3) Thornton
History of the relations between the Communist Party of China and the Comintern. (Spring—day)

- 295-96 Research Seminar: the Modern Far East (3-3) Johnson
First half: social and intellectual revolution in Modern China; replacement of scholar-gentry by 20th century intelligentsia. Emphasis on radical change after 1919. *Second half:* development of U. S. Far Eastern policy since 1898; with emphasis on coming of World War II, and U. S. policy toward China since 1941. Prerequisite: History 195-96 or equivalent. (*First half:* not offered 1968-69. *Second half:* spring—day.)

346 Readings in Russian History (3)

Thompson

Russian 19th and 20th century history. Emphasis on political and intellectual movements reflecting the rise and fall of the revolutionary cycle. (Spring—day)

POLITICAL SCIENCE**215-16 Seminar: the Socialist Camp in World Politics I-II (3-3)**

London

(Formerly Seminar: Sino-Soviet Blocs in World Affairs I-II)

First half: significant issues of communism, particularly in the Soviet Union and Red China; concept and structure of "world socialist system"; intra-Bloc relations with emphasis on the Sino-Soviet dispute. Prerequisite: 3 semester hours in modern political theory. Second half: political ramifications of the communist movement and its relations with the noncommunist world. Prerequisite: 3 semester hours in international relations or comparative government. (Academic year—day)

224 Readings in Socialism and Communism (3)

Kraus

Readings of primary and secondary works ranging from pre-Marxian and Marxian socialism to contemporary Marxism-Leninism. Prerequisite: 3 semester hours in modern political theory. (Fall—day)

225 Seminar: Marxism-Leninism (3)

Kraus

Crucial theoretical problems, such as the nature of revolution, dictatorship of the proletariat, transition to communism, imperialism, and national liberation in Marxian and contemporary communist doctrine. Prerequisite: Political Science 224 or permission of instructor. (Spring—evening)

227 Seminar: Government and Politics of Eastern Europe (3)

Gyorgy

Comparative study of principal political, social, economic institutions; Soviet stake; patterns of Soviet domination; efforts toward economic and political integration; impact of the Sino-Soviet dispute; U. S. policy toward satellite nations. Workshop: Eastern Europe in world affairs. (Spring—evening)

229 Readings in Soviet Government and Politics (3)

Elliott

(Formerly Policies Toward Arts and Humanities in Communist Society)

Readings in contemporary Soviet domestic government and politics. Prerequisite: 3 semester hours selected from History 146, Political Science 112, or equivalent. (Fall—evening)

230 Seminar: International Communism (3)

Metz

Fall semester: emphasis on operational techniques. Spring semester: case studies. Students may receive credit for the fall semester and also the spring semester, but neither semester may be repeated for credit. (Fall and spring—evening)

231 Seminar: Sino-Soviet Relations (3)

Michael

Background, development, and status of conflict within the communist movement; emphasis on the role of Chinese communists. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or equivalent. A reading knowledge of Russian or Chinese required. (Spring—day)

- 232 Seminar: International Communications (3)** White, Dasbach
East-West perspectives. History and theory, image factors, national patterns, communication in the communist orbit and between it and the free world. (Fall—day)
- 233 Seminar: Soviet Government and Politics (3)** Elliott
Research seminar in selected problems of Soviet domestic government and politics. Emphasis: since Stalin. Prerequisite: Political Science 229 or consent of instructor. (Spring—evening)
- 234 Soviet Political Process (3)** Ploss
Influence of revolutionary ideas, traditions, and accidental events on Soviet organization, and on administration of Soviet social, economic, nationality, and military policies; application of these policies by leaders to maintain power. (Fall—day)
- *237 Chinese Law (3)** Hsia
Emphasis on the legal system of Communist China; analysis of the constitutional law of the People's Republic of China including general principles, state structure, and rights and duties of citizens; a brief survey of the administration of justice—courts, procuratorates, and lawyers; marriage law, land law; counterrevolutionary act and other criminal statutes; principles of civil law; communist Chinese concept of international law. (Spring—evening)
- †238 Soviet Law (3)** Ramundo
Concept of "socialist legality"; legal relationship of individual to state and other participants in Soviet society; role of Party in Soviet legal system; Soviet philosophy of law; state (constitutional) law: Soviet federalism, governmental apparatus, rights and obligations of citizenship; criminal law; property law; labor law; selected topics in civil law and procedure; international law. (Fall—as arranged)
- 253 Seminar: Chinese Government and Politics (3)** Michael
Political institutions and concepts in late imperial times, during the revolution, under national government, and under communism. Emphasis on the communist period. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or equivalent. A reading knowledge of Chinese required. (Fall—day)
- 254 Colloquium: Modern China (3)** Michael
Interuniversity research colloquium of faculty members of the Institute for Sino-Soviet Studies and other area universities from different disciplines concerned with the study of modern China. Critical discussions of research plans and studies in progress in weekly sessions. Advanced graduate students admitted with permission of faculty group. (Fall and spring—day)
- 255 Colloquium: Russia and Eastern Europe (3)** London, Gyorgy
Interuniversity research colloquium of faculty members of the Institute for Sino-Soviet Studies and other area universities from different disciplines

* Same as Law 547 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

† Same as Law 546 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

concerned with the study of Russia and Eastern Europe. Critical discussions of research plans and studies in progress in weekly sessions. Advanced graduate students admitted with permission of faculty group. (Fall and spring—day)

257 Seminar: Communism in Developing Countries (3)

Examination of international communist policy for, and communist parties in, developing countries. Case studies of Asia, Africa, and Latin America. Basic communist concepts of imperialism and nationalism; development and current application of Soviet and Chinese variants of strategy and tactics for "national liberation." (Not offered 1968-69)

258 Seminar: Communist Parties in the Noncommunist World (3)

Movements and ideological variations of communist parties of France, Italy, the Scandinavian countries, and other Central and West European nations. Case studies on communist problems of Middle East and North African nations. (Not offered 1968-69)

265-66 Chinese Communist Policy Processes (3-3)

Hinton

Determinants of policy, view of the world, instrumentalities and locus power, interrelationship between domestic and foreign policy, formulation and implementation of policy. Prerequisite: 3 semester hours selected from Political Science 231, 253, 295, 296. First half: readings. Second half: research seminar. (Academic year—evening)

269 Seminar: Soviet Foreign Policy (3)

Elliott

External policies and relations of the USSR; world objectives of Soviet leaders; relations with other communist states, Western powers, and other countries; international propaganda, disarmament policy, foreign economic relations. Prerequisite: 3 semester hours selected from History 137, 145-46, or equivalent. (Spring—evening)

270 Political and Social Institutions of Eastern Europe (3)

Gyorgy

Major political and social factors which have shaped the inter-war, World War II, and post-war evolution of Eastern Europe. Emphasis on sociological and anthropological forces which have contributed to "Balkanization" of this area in the last fifty years. Each time the course is offered the concentration will be on one or two selected countries. (Fall—day)

288 Seminar: Soviet Military Policy and Strategy (3)

Gallagher

Soviet developments in military policy and strategy with attention to intra-Bloc military cooperation, political context of Soviet military policy, significant changes in recent Soviet military thought. (Fall—evening)

294 Seminar: Governments and Politics of Japan and Korea (3)

Readings, research, and discussion on contemporary political problems and relevant historical background of Japan, North and South Korea. (Not offered 1968-69)

295 Seminar: Chinese Communist Foreign Policy (3)

Hinton

Objectives; formulation and implementation of foreign policy; Communist China as Asian state, revolutionary influence, would-be power. Relevant background, such as Political Science 253, desirable. (Spring—day)

296 Seminar: the Communist Role in Far Eastern International Politics (3) Hinton

Evolution of communist strategy for Asia, armed struggle in South and Southeast Asia, wooing of national bourgeoisie, development of Asian communist states, local communist parties since World War II, Sino-Soviet rivalry. (Fall—evening)

298 Southeast Asia in World Politics (3) Gordon

Southeast Asia in great-power perspective. Overlapping and conflicting interests, foreign policies, and military requirements of the United States, Japan, China, and the USSR. Balance-of-power concept and development of Asian subsystem. (Spring—evening)

PSYCHOLOGY

259 Seminar: Social Psychology of Communism (3) White

Public and governmental opinion in communist countries, authoritarian thinking, communist propaganda, problems of Western communication with communist countries. (Fall—evening)

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

CHINESE (MANDARIN)

163-64 Chinese Literature in Translation (3-3) Shih

General survey of the development of Chinese Literature from ancient times to present. Major works will be studied in terms of their historical development. (Academic year—day)

SLAVIC

161-62 Russian Culture (3-3) Olkhovsky

Survey of Russian cultural heritage from origins of ancient Russia to present—in English. Lecture, recitation, discussion, and individual reports on assigned topics. (Academic year—day)

165 Soviet Literature (3) Staff

Survey of major literary figures, movements, and styles. Revolution and its impact on literature and writers. Revival of psychological novel, short story, contemporary poetry—in English. (Fall—evening)

Italian

See "Romance Languages and Literatures."

International Affairs

See "Public and International Affairs."

Journalism*

Associate Professor R.C. Willson (*Chairman*)

Associate Professorial Lecturers H.L. Coppenbarger, F.L. Dennis, T.R. Smith, Harold Lauth, G.F. Sherman, Jr.

Assistant Professorial Lecturers H.E. Paine, R.D. Woodward, George Cheely, Shirley Elder, Philip Robbins, Arthur Settel

Bachelor of Arts with a major in Journalism (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including English 51-52 or 71-72, History 71-72, Political Science 5-6, and Journalism 71-72.

Required:

- (1) The general requirements, pages 74-78.
- (2) Twenty-four hours of second-group courses in Journalism, as follows: (a) Journalism 111, 196, 198; (b) nine hours chosen from Journalism 121, 133, 137, 139, 151; (c) six hours chosen from Journalism 115, 116, 140, 145, 146.

(3) Twelve hours of second-group courses, chosen in consultation with the major adviser, in one other department of Columbian College of Arts and Sciences. Students selecting science may take courses in more than one department.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Journalism majors.

FIRST GROUP

71-72 Journalism in American Society (3-3)

First half: evolution of newspapers and other media in relation to political, social, and economic life; concept of press freedom. *Second half:* mass media, problems of contemporary journalism, emphasis on media-government relations. (Academic year—day and evening)

Willson

SECOND GROUP

111 Reporting (3)

Gathering, evaluating, and writing news. (Fall and spring—day and evening)

Coppenbarger, Elder

115 Newspaper Editing and Make-up (3)

Preparation of news copy, pictures, and other graphic material for publication; evaluation of news; page layouts; newspaper make-up. (Fall—evening)

Woodward

116 Magazine Layout and Design (3)

Layout, typography, and design for magazines, newsletters, house organs, and similar publications for associations, institutions, and industry. (Not offered 1968-69)

Paine

121 Feature Writing (3)

Free-lancing magazine articles, material obtained through independent investigation. (Fall—day)

Willson

125 Science Writing (3)

Writing science news for the mass media. (Spring—as arranged)

* Staff of Instruction for the academic year 1967-68.

- 133 **Advanced Reporting: Community News** (3)
Coverage and writing of local news. (Fall—as arranged)
- 137 **Advanced Reporting: National Affairs** (3) Sherman
Coverage and writing of federal government news from the point of view of the press association. (Not offered 1968–69)
- 139 **Advanced Reporting: Radio and Television News** (3) Cheely
Preparing news and public affairs programs for broadcast media. (Spring—evening)
- 140 **Photojournalism** (3) Smith
Photographic techniques affecting publication, illustration and story angle, standards of judgment in selection and use of pictures, captions, editing, technique, cropping for effective reproduction. (Spring—evening)
- 145 **Principles and Problems of Public Relations** (3) Lauth
Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs. (Fall—day)
- 146 **Government Information** (3) Settel
Growth of information activities in government and the role of the information specialist. Writing and editing for government information operations. (Spring—evening)
- 151 **Editorial Writing** (3)
Writing editorials on public affairs. (Spring—day)
- 196 **Seminar** (3) Willson
For journalism majors only. Research and in-depth reporting in an area of current news interest. (Spring—as arranged)
- 198 **Law of the Press** (3) Dennis
Freedom of the press, censorship, legislative controls, publications as contempt of court, copyright, news gathering agencies, labor law and the newspaper business, law of libel, privileged matter, fair comment on public characters, right of privacy. (Fall—evening)

Linguistics—Graduate Study

COMMITTEE ON LINGUISTIC STUDY 1967–68

J.G. Allee, Jr. (*Chairman*), J.A. Frey, J.C. King, R.K. Lewis, David Nelson, C.W. Pettit, Helen Yakobson

The Graduate School of Arts and Sciences offers an interdepartmental Master of Arts field in Linguistics, which is directed by the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures. Interested students should consult the Chairman of the Committee on Linguistic Study and the chairman of the department concerned. Occasionally a student is accepted with an undergraduate major in a language other than French, German, Italian, Portuguese, Russian, or Spanish.

Students may elect Linguistics in the fields of Germanic Languages and Literatures and Romance Languages and Literatures toward the degree of Doctor of Philosophy.

There is no undergraduate major in the field of Linguistics.

The candidate's program will normally be selected from the following courses. Students are urged to consult the Committee and the appropriate catalogues concerning courses which can be taken under the agreement for the Consortium of Universities of the Washington Metropolitan Area, Inc.

ANTHROPOLOGY

- 161 *Language and Culture* (3)
- 162 *Linguistics in Anthropology* (3)
- 163 *Language Problems in Developing Nations* (3)
- 193 *Anthropological Methods* (3)
- 261 *Field Methods in Sociolinguistics* (3)

Staff
Staff
Staff
Crocker
Staff

ENGLISH

- 125 *Introduction to English Linguistics* (3)
- 223-24 *Old English* (3-3)

Allee
Allee

GERMANIC LANGUAGES AND LITERATURES

- 201-2 *Middle High German* (3-3)
- 205-6 *Gothic* (3-3)
- 209-10 *Old High German* (3-3)
- 213-14 *Old Norse* (3-3)
- 223-24 *Linguistic Analysis of Modern German* (3-3)
- 225-26 *Seminar: Linguistics* (3-3)
- 227-28 *Sanskrit—Introduction to Indo-European Linguistics* (3-3)

Legner
Legner
King
Allee
King
King, Allee
King

MATHEMATICS

- 101 *Introduction to Mathematical Logic* (3)
- 122 *Introduction to Abstract Algebra* (3)
- 124 *Introduction to Matrix Theory* (3)
- 201-2 *Mathematical Logic* (3-3)

Nelson
Staff
Staff
Nelson

PHILOSOPHY

- 122 *Advanced Logic* (3)
- 196 *Philosophy of Language* (3)

Griffith
Schlagel

PSYCHOLOGY

- 115 *Psychology of Language and Communication* (3)

Mosel

ROMANCE LANGUAGES AND LITERATURES

FRENCH

- 212 *Historical French Grammar* (3)
- 213-14 *Old French* (3-3)

Staff
Vigneras

SPANISH

- | | |
|---|-------|
| 212 <i>Historical Spanish Grammar</i> (3) | Staff |
| 214 <i>Old Spanish</i> (3) | Staff |

GENERAL COURSE IN ROMANCE LANGUAGES AND LITERATURES

- | | |
|--|-------|
| 279 <i>Introduction to Romance Philology and Linguistics</i> (3) | Staff |
|--|-------|

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

CHINESE (MANDARIN)

- | | |
|---|-------|
| 125 <i>Chinese Linguistic Structure</i> (3) | Staff |
| 126 <i>Comparative Chinese-English Linguistic Structure</i> (3) | Staff |

SLAVIC

- | | |
|--|----------|
| 125 <i>Russian Linguistic Structure I</i> (3) | Thompson |
| 126 <i>Russian Linguistic Structure II</i> (3) | Thompson |
| 215-16 <i>History of the Russian Literary Language</i> (3-3) | Staff |

SPEECH AND DRAMA

- | | |
|---|---------|
| 101 <i>Phonetics</i> (3) | Majerus |
| 176 <i>Speech, Hearing, and Language Development</i> (3) | Monsees |
| 279 <i>Anatomy and Physiology of Speech and Hearing</i> (3) | Bowling |
| 284 <i>Experimental Phonetics</i> (3) | Hillis |
| 285 <i>Language and Speech of the Hearing Handicapped</i> (3) | Monsees |
| 291 <i>Seminar: Speech Pathology</i> (3) | Staff |
| 292 <i>Seminar: Audiology</i> (3) | Staff |
| 295 <i>Independent Research in Speech and Hearing</i> (arr.) | Staff |

STATISTICS

- | | |
|--|----------|
| 161-62 <i>Information Theory</i> (3-3) | Kullback |
|--|----------|

Mathematics*

- Professors David Nelson, T.P.G. Liverman, Hewitt Kenyon (*Chairman*), C.T. Taam
- Professorial Lecturers W.H. Marlow, D.M. Dribin, Thomas Saaty, Joseph Blum, J.P. Mayberry
- Associate Professors W.A. Smith, R.Z. Vause, Dagmar Henney, Irving Katz
- Associate Professorial Lecturer P.J. Kalman
- Assistant Professors Ruth Bari, I.I. Glick, M.D. Green, E.A. Stone
- Assistant Professorial Lecturers Mabel Morris, R.P. Pikul, J.J. Uhl, Jr., W.B. Gruttke
- Instructor James McPherson

* Staff of Instruction for the academic year 1967-68.

Bachelor of Arts or Bachelor of Science with a major in Mathematics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70.

Required: in addition to the general requirements, pages 74–78, twenty-four semester hours of approved second- and third-group Mathematics courses.

Master of Arts in the field of Mathematics.—Prerequisite: a Bachelor's degree with a major in Mathematics at this University, or the equivalent.

Required: the general requirements, pages 83–87.

Master of Arts in the field of Linguistics.—See pages 287–89 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy fields of study in Mathematics: Algebra (Finite Groups, Matrix Theory), Differential Equations, Functional Analysis, Generalized Functions, Measure and Integration, Logic, and General Topology.—See pages 83–85, 87–88, for requirements for the degree.

Bachelor of Arts in Education with a teaching field in Mathematics.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Mathematics option and the professional courses listed on pages 102, 105.

Placement Examination: new students registering for Mathematics 6 or 21 are required to take a placement examination.

Departmental prerequisite: Mathematics 24 is prerequisite to all second-group courses in Mathematics. Exception to this regulation may be made for Mathematics 101, 122, and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

FIRST GROUP

3 College Algebra (3)

Equivalent to second-year high school algebra. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1968)

Staff

6 Plane Trigonometry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor). (Fall and spring—day and evening; summer 1968)

Staff

9 General Mathematics I (3)

For students electing Mathematics 9 and 10 as a terminal sequence. Numbers, numerals and numbers, number bases, mathematical systems, sets, propositional logic, and truth values. Prerequisite: two years of high school mathematics. (Fall and spring—day and evening; summer 1968)

Staff

10 General Mathematics II (3)

Number systems, Euclidean and non-Euclidean geometry, graphs, functions, introduction to analytic geometry. Prerequisite: Mathematics 9. (Fall—evening; spring—day and evening; summer 1968)

Staff

15 Finite Mathematics I (3)

Introduction to logic, sets, and probability. Prerequisite: two years of high school mathematics. (Fall—day and evening; spring—evening; summer 1968)

Staff

16 Finite Mathematics II (3) Staff
 Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. (Spring—day and evening; summer 1968)

21 Calculus I (3) Staff
 Elementary concepts of analytic geometry. Differentiation of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or equivalent. (Fall and spring—day and evening; summer 1968)

22 Calculus II (3) Staff
 Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1968)

23 Calculus III (3) Staff
 Techniques of integration, vector concepts, improper integrals, polar coordinates, infinite series. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1968)

24 Calculus IV (3) Staff
 Solid geometry, multiple integration and partial differentiation with applications, line and surface integrals, differential equations. Prerequisite: Mathematics 23; with departmental permission, students may register concurrently in Mathematics 23 and 24. (Fall and spring—day and evening; summer 1968)

SECOND GROUP

101 Introduction to Mathematical Logic (3) Nelson
 Introduction to proof theory and model theory of propositional and predicate calculi, computability, topics from foundations of mathematics. Prerequisite: Mathematics 24. (Fall—evening)

102 Axiomatic Set Theory (3) Nelson
(Formerly Fundamental Concepts of Mathematics)
 Zermelo-Fraenkel set theory, ordinals and cardinals, foundations of the real number system. Prerequisite: Mathematics 101 or permission of instructor. (Spring—evening)

106 Introduction to Topology (3) Staff
 Prerequisite: Mathematics 139 or permission of instructor. (Spring—evening)

111 Mathematics for Engineers and Physicists I (3) Staff
 Differential equations, linear algebra. (Fall—evening; summer 1968)

112 Mathematics for Engineers and Physicists II (3) Staff
 Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111. (Spring—evening; summer 1968)

- 113 Graph Theory (3)** Mayberry
Directed and undirected graphs; unicursal graphs; shortest paths; Hamilton circuits; incidence, circuit, and cut-set matrix relations; coloring problems; network flow. (Summer 1968)
- 120 Introduction to Theory of Numbers (3)** Vause
Prerequisite: Mathematics 122 or equivalent. (Fall—evening)
- 122 Introduction to Abstract Algebra (3)** Staff
(Fall—evening; spring—day; summer 1968)
- 123 Linear Algebra (3)** Staff
Prerequisite: Mathematics 122. (Fall—day; spring—evening)
- 124 Introduction to Matrix Theory (3)** Staff
Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices. (Spring—evening; summer 1968)
- 134 Introduction to Boundary Value Problems (3)** Staff
Prerequisite: Mathematics 111 or 142. (Spring—day)
- 135 Projective Geometry (3)** Dribin
Prerequisite: Mathematics 123 or 124, or equivalent. (Fall—evening)
- 139 Advanced Calculus I (3)** Staff
Review and extension of elementary one-variable calculus, emphasis on the theoretical foundations. Prerequisite: Mathematics 24 or former 28, or equivalent. (Fall—day and evening; spring—evening; summer 1968)
- 140 Advanced Calculus II (3)** Staff
Calculus of several variables. Prerequisite: Mathematics 139 or equivalent. (Spring—evening; summer 1968)
- 142 Theory of Differential Equations (3)** Staff
Prerequisite: Mathematics 139. (Fall—evening)
- 153 Introduction to Numerical Analysis (3)** Marlow
(Fall—evening)
- 154 Difference Equations (3)** Staff
(Spring—evening)
- 157 Introduction to Complex Variable Theory (3)** Staff
(Fall—evening; summer 1968)
- THIRD GROUP**
- 201-2 Mathematical Logic (3-3)** Nelson
(1969-70 and alternate years)
- 220 Theory of Numbers (3)** Vause
Prerequisite: Mathematics 120 or equivalent. (Spring—evening)
- 237-38 Theory of Functions of a Complex Variable (3-3)** Staff
(1969-70 and alternate years)

- 239-40 **Ordinary Differential Equations (3-3)** Glick
(Formerly *Mathematics 249*)
(Academic year—day)
- 243-44 **Numerical Analysis (3-3)** Marlow
(1969-70 and alternate years)
- 250 **Measure and Integration (3)** Henney
Lebesgue measure and integration, measure and integration in abstract spaces, the Daniell integral. (Spring—evening)
- 251-52 **Real and Abstract Analysis (3-3)** Liverman
Elements of topology; filters, compactness, metric spaces. Continuity and double limits. Banach and Hilbert spaces. Vector to vector functions; implicit function theorem. Prerequisite: *Mathematics 106, 124, and 140*; or equivalent. (Academic year—evening)
- 253-54 **Topics in Nonlinear Mathematics (3-3)** Saaty
(Not offered 1968-69)
- 255 **Differential Geometry (3)** Dribin
(Fall—evening)
- 256 **Introduction to Algebraic Geometry (3)** Dribin
(Not offered 1968-69)
- 257 **Lie Groups (3)** Katz
(Not offered 1968-69)
- 258 **Group Representations (3)**
(Not offered 1968-69)
- 259 **Advanced Topics in Group Theory (3)** Katz
(Not offered 1968-69)
- 261-62 **Theory and Application of Generalized Functions (3-3)** Liverman
(Replaces former *Mathematics 261 Generalized Functions and Operational Methods*, and *262 Advanced Operational Methods*)
Definition of distributions of Schwartz and Gelfand-Silov. Operational and integral transform methods applied to the existence theory and explicit solution of ordinary and partial differential equation problems of mathematical physics. Structure of distributions. Schwartz kernel theorems. Mathematical framework of quantum field theory. Prerequisite: *Mathematics 140*. (1969-70 and alternate years)
- 265-66 **Modern Algebra (3-3)** Staff
Fundamental concepts of theory of groups, rings, and fields; theory of finite fields, extension fields, Galois groups, factorization theory in Gaussian domains and groups with operators. Prerequisite: *Mathematics 122 and 124*, or equivalent. (Academic year—evening)
- 267 **Topics in Matrix Theory (3)** Katz
Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix representation of groups and rings, special topics as time allows. Prerequisite: *Mathematics 124* and an elementary knowledge of groups, rings, and fields. (Not offered 1968-69)

294 COURSES OF INSTRUCTION

- 268 **Calculus of Variations** (3) Blum
(Summer 1968)
- 269 **Integral Equations** (3) Glick
(Summer 1968)
- 270 **Tensor Analysis** (3)
(Not offered 1968-69)
- 272 **Hilbert Space** (3)
(Not offered 1968-69)
- 277 **Partial Differential Equations** (3) Glick
(Spring-evening)
- 281-82 **General Topology** (3-3) Green
(Academic year-evening)
- 283 **Topological Groups** (3) Green
(Not offered 1968-69)
- 285 **Algebraic Topology** (3) Bari
(1969-70 and alternate years)
- 287-88 **Functional Analysis** (3-3) Taam
Prerequisite: Mathematics 238, 250, 251 or 106; or consent of instructor.
(1969-70 and alternate years)
- 289-90 **Applications of Functional Analysis** (3-3) Taam
Admission by permission of instructor. (Academic year-evening)
- 291-92 **Seminar** (3-3) Taam
(Not offered 1968-69)
- 295 **Reading and Research** (3) Staff
May be repeated once for credit. (Fall and spring—as arranged)
- 299-300 **Thesis Research** (3-3) Staff
(Academic year—as arranged; summer 1968)

FOURTH GROUP

- 398 **Advanced Reading and Research** (arr.) Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 **Dissertation Research** (arr.) Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Microbiology*

Professors A.M. Griffin, Mary Louise Robbins, R.C. Parlett (*Chairman*), L.J. Griffith (*Visiting*)
Professorial Lecturers F.B. Gordon (*Virology*), Dorothy Heilman (*Cellular Immunology*)
Associate Professors Rudolph Hugh, L.F. Affronti
Assistant Professors Melvin Reich, G.L. Wright, Jr., Yang-Ming Chu (*Research*)
Assistant Professorial Lecturer P.J. Price
Lecturer E.L. Speck

Master of Science in the field of Microbiology.—Prerequisite: a Bachelor's degree from this University, or the equivalent, with a major in Biology, Botany, Chemistry, or Zoology. The undergraduate program must include the following courses or equivalent: Biological Sciences 1-2; Chemistry 11-12, 51-52, 53-54; Mathematics 21, 22 (22 may be taken concurrently with the graduate program); Physics 1, 2.

Required: the general requirements, pages 83-87. The thirty semester hours of course work must include (if not presented for admission) Microbiology 211 and 212, 293-94, 299-300, and Biochemistry 221-22. The remaining academic work should consist of graduate-level courses selected with the approval of the instructor. It is not always possible to arrange courses and research so that the student can be assured of completing all required work in one academic year.

Doctor of Philosophy fields of study in Microbiology: Determinative Bacteriology, Immunochemistry, Immunology, Microbial Chemistry, Microbial Pharmacology, Microbial Physiology, Mycology, and Virology.—See pages 83-85, 87-88, for requirements for the degree.

211 Microbiology (4)

Staff

For graduate students. Bacteria, fungi, rickettsiae, viruses. Prerequisite: any biological laboratory science, Chemistry 51-52, 53-54. Laboratory fee, \$16. (Fall—day)

212 Pathogenic Microbiology (4)

Staff

For graduate students. Continuation of Microbiology 211; emphasis on harmful activities of microorganisms. Prerequisite: Microbiology 211 or equivalent. Laboratory fee, \$16. (Spring—day)

214 Tissue Cell Culture and Somatic Variation (4)

Price

Techniques of tissue culture and means of studying somatic variations. Prerequisite: Microbiology 211, 212. (Spring—day)

225 Microbial Physiology I (3)

Affronti, Reich

(Formerly Microbial Chemistry and Physiology)

Biochemical features of various microorganisms—especially bacteria—described and compared with those of the animal cell. Prerequisite: Biochemistry 221-22 or equivalent. Microbiology 211 or equivalent recommended. (1969-1970 and alternate years: fall)

227 Microbial Physiology II (3)

Affronti, Reich

(Formerly Microbial Pharmacology)

Interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Prerequisite: Microbiology 225 or permission of instructor. (1968-69 and alternate years: fall—as arranged)

* Staff of Instruction for the academic year 1967-68.

- 231 Immunology (1)** Parlett
(Formerly *Immunology and Immunochemistry (4)*)
Broad considerations of the reticulo-endothelial system functions in immune responses. (Fall—day)
- 233 Biology of Viruses (4)** Robbins
For graduate students. Viruses and rickettsiae. Prerequisite: Microbiology 211. Laboratory fee, \$16. (Fall—day)
- 235 Systematic Bacteriology (3)** Hugh
History of bacterial classification, international rules of nomenclature as applied to bacteria, development of bacterial classification based upon relationships, survey of characteristics of bacterial groups. Prerequisite: Microbiology 212 or equivalent. (Fall—day)
- 251 Bacteriology (2)** Hugh
Primarily elective course for medical students; open to graduate students. Clinical situations involving bacteriology. (Fall—day)
- 255 Virology (2)** Robbins
Primarily elective course for medical students; open to graduate students. Parallels Microbiology 251, with substitution of viruses for bacteria. (Fall—day)
- 257 Immunochemistry (4)** Wright
(Formerly *Immunology (2)*)
For graduate and medical students. Lecture (2 hours), laboratory (6 hours). Biochemical and physical aspects of immunologically active substances. Limited enrollment. Laboratory fee for nonmedical students. \$16. (Fall—day)
- 271-72 Seminar: Immunology (1-1)** Parlett, Wright
For graduate and medical students. Admission by permission of instructor. (Academic year—day)
- 273-74 Seminar: Virology (1-1)** Robbins
For graduate and medical students. Admission by permission of instructor. (Academic year—day)
- 275-76 Seminar: Microbial Physiology (1-1)** Affronti, Reich
For graduate and medical students. Admission by permission of instructor. (Academic year—day)
- 277-78 Seminar: Bacteriology (1-1)** Hugh
For graduate and medical students. Admission by permission of instructor. (Academic year—day)
- 293-94 Departmental Seminar (1-1)** Griffith
For graduate students. Monthly throughout the year. (Academic year—evening)
- 295 Research in Microbiology (arr.)** Staff
Content differs each time the course is offered; may be repeated once for credit. (Fall and spring—day; summer 1968)
- 299-300 Thesis Research (3-3)** Staff

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Music*

Associate Professor George Steiner (*Chairman*)

Assistant Professors Robert Parris, N.A. Tilkens

Assistant Professorial Lecturer Cecelia Porter

Studio Lecturers in *Applied Music* N.O. Scribner, Jr., J.E. Stephens, Margaret Tolson, Jule Zabawa, M.S. Thomas, Marian McNabb, Constance Russell, Sidney Forrest, Peggy Reinburg, R.O. White, Phyllis Gieseler, S.E. Ramsay

Bachelor of Arts with a major in (1) Music History and Literature, (2) Music Theory, or (3) Applied Music (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, or equivalent, including Music 5–6.

Required: in addition to the general requirements, pages 74–78, Music 103–4 and 131–32; a minimum of four semesters in Music Ensemble groups (or evidence of equivalent experience); twenty-four semester hours of second-group courses as follows:

1. *For the major in Music History and Literature.*—Twelve semester hours of Music History and Literature courses, six hours of Applied Music, and six hours of Music Theory courses.

2. *For the major in Music Theory.*—Twelve semester hours of Music Theory courses, six hours of Music History and Literature courses, and six hours of piano (other instrument or voice if departmental requirements for proficiency in piano are met).

3. *For the major in Applied Music.*—Twelve semester hours of Applied Music in field of specialization, senior recital, six hours of Music Theory courses, and six hours of Music History and Literature courses.

Master of Arts in the field of Musicology.—Prerequisite: a Bachelor's degree with a major in music, or equivalent.

Required: the general requirements, pages 83–87; eighteen semester hours of Music History and Literature or Music Theory courses; six semester hours of Applied Music; and a thesis demonstrating research ability in musicology.

Master of Music in the field of Music Theory, Music Composition, Conducting, or Applied Music.—Prerequisite: a Bachelor's degree with an undergraduate major in one of the following, at this University, or equivalent: (1) Music History and Literature, (2) Music Theory, or (3) Applied Music.

Required: the general requirements, pages 83–87. The thirty semester hours of required second- and third-group course work including a thesis (299–300) are as follows:

1. *In the field of Music Theory.*—Eighteen semester hours of Music History and Literature and Music Theory courses, six hours of Applied Music, and a thesis demonstrating research ability in theoretical, creative, or analytical techniques.

2. *In the field of Music Composition.*—Eighteen semester hours of Music History and Literature and Music Theory courses, six hours of Applied Music, and a creative

* Staff of Instruction for the academic year 1967–68.

thesis of one composition in large form properly prepared for performance (chamber music, a symphonic form, or a choral work with orchestral accompaniment) including a written theoretical, formal, and harmonic analysis of the work.

3. *In the field of Conducting.*—Eighteen semester hours of Music History and Literature and Music Theory courses, six hours of Applied Music, and a thesis demonstrating research ability in theoretical, creative, or analytical techniques. The requirements also include an acceptable public conducting performance.

4. *In the field of Applied Music.*—Twelve semester hours of Applied Music in the area of concentration (piano, harpsichord, organ, voice, a bowed string or an orchestral woodwind instrument), twelve hours of Music Theory and Music History and Literature courses. The thesis area consists of (1) a public recital or performance before a designated committee—such a recital or performance must be representative of an extensive and well-rounded repertory, performed on a professionally accepted artistic level, including verbal historical and analytical lecture notes on the musical content of the program; (2) demonstrated leadership in an ensemble performance (opera or oratorio for voice); and (3) a written report on some approved theoretical area related to the student's concentration.

Bachelor of Arts in Education with a teaching field in Music.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Music option and professional courses listed on pages 102, 105.

MUSIC HISTORY AND LITERATURE

FIRST GROUP

3 Introduction to Music (3)

Steiner, Tilkens, Porter

(Formerly Music Appreciation I)

Introductory history of musical styles, related to listening; elements and materials of music. (Fall and spring—day and evening; summer 1968)

4 Survey of Music Literature (3)

Steiner, Tilkens

(Formerly Music Appreciation II)

Introductory study of musical forms, structures and textures; aural analysis of selected literature. (Spring—day and evening; summer 1968)

SECOND GROUP

103–4 History of Music (3–3)

Steiner, Tilkens

Development of music in the Western World from the early Christian Era to the present. (Academic year—day; summer 1968)

105 Music of the Baroque Period (3)

Tilkens

Study of the musical styles, techniques, and literature from 1600 to 1750. (Fall—day)

106 Music of the Classic Period (3)

Tilkens

Study of styles, techniques, and literature from the 18th century schools through Haydn, Mozart, and Beethoven. (Spring—day)

107 Music of the Romantic Period (3)

Porter

Study of the musical styles, backgrounds, and literature from Schubert through the 19th century (Not offered 1968–69)

108 Music of the 20th Century (3)

Steiner

The principal schools, techniques, developments, and trends of the 20th century. (Spring—day)

- 109 **Orchestra Literature (3)** Steiner
Survey of the history and styles of orchestra literature, analysis of representative works. (Fall—day)
- 110 **Chamber Music Literature (3)** Steiner
Survey of the history and styles of chamber music literature, analysis of representative works. (Not offered 1968–69)
- 121 **The Opera (3)** Porter
Survey of the history and styles of opera, analysis of representative works. (Fall—day)
- 125 **Keyboard Music Literature (3)** Tilkens
Survey of the history, style, and major content of the keyboard literature from the 16th century to the present. (Not offered 1968–69)

THIRD GROUP

- 203 **Bibliography and Research Methodology (3)** Porter
(Fall—day)
- 209 **History of Musical Instruments (3)** Steiner
(Not offered 1968–69)
- 234 **Seminar: Performance Practices in Selected Areas (3)** Staff
(Not offered 1968–69)
- 238 **Seminar: Analytical Studies in Music History (3)** Parris
Topic for 1968–69: the music of Bach. (Spring—day)

MUSIC THEORY

FIRST GROUP

- 1 **Elements of Music Theory (3)** Porter, Tilkens
Notation, scales, keys, intervals, terms, rhythms, ear-training, sight-singing, elementary keyboard harmony, melodic and harmonic dictation. (Fall and spring—day; summer 1968)
- 5–6 **Elementary Harmony (3–3)** Parris
Triads, inversions; chord analysis, construction and progression; part-writing, modulations, figured bass. Prerequisite: Music 1 or satisfactory passing of placement examination. (Academic year—day; summer 1968)

SECOND GROUP

- 131–32 **Advanced Harmony (3–3)** Parris
Practice in harmonic writing and analysis, realization of unfigured bass, altered chords, elementary 18th century counterpoint. Prerequisite: Music 5–6 or equivalent. (Academic year—day)
- 135 **Counterpoint (3)** Parris
Study and practice of early contrapuntal techniques. (Not offered 1968–69)

300 COURSES OF INSTRUCTION

- | | | |
|-----|--|---------|
| 137 | Orchestration (3) | Parris |
| | Instrumental scoring. (Spring—day) | |
| 138 | Form and Analysis (3) | Parris |
| | Analysis of musical forms in representative musical literature. (Fall—day) | |
| 151 | Conducting (3) | Steiner |
| | Technique of conducting, score reading, rehearsal procedures, analysis, and interpretation of selected musical literature; practice in conducting. (Not offered 1968–69) | |

THIRD GROUP

- | | | |
|---------|----------------------------------|---------|
| 231–32 | Composition (3–3) | Parris |
| | (Academic year—as arranged) | |
| 235 | Advanced Counterpoint (3) | Parris |
| | (Fall—as arranged) | |
| 251 | Advanced Conducting (3) | Steiner |
| | (Spring—as arranged) | |
| 299–300 | Thesis Research (3–3) | Staff |
| | (Academic year—as arranged) | |

APPLIED MUSIC

All Applied Music courses may be repeated for credit. The supplementary fee is waived for full-time music majors. With the exception of Music 51, 52, 53, and 54, one-semester hour courses are individual lessons of ½ hour a week—supplementary fee, \$40; two-, three-, or six-semester hour courses are individual lessons of 1 hour a week—supplementary fee, \$80. Six-semester hour courses include lessons, supervised ensemble preparation, and required practice 15 hours a week. Music 51, 52, 53, and 54 do not include individual lessons and carry no supplementary fee.

FIRST GROUP

Three hours of practice are required for each semester hour.

- | | | |
|----|--|----------------------------------|
| 11 | Piano (1) | Tolson, McNabb, Russell, Tilkins |
| | (Fall and spring—as arranged; summer 1968) | |
| 12 | Piano (2) | Tolson, McNabb, Russell, Tilkins |
| | (Fall and spring—as arranged) | |
| 13 | Voice (1) | Zabawa, Gieseler |
| | (Fall and spring—as arranged; summer 1968) | |
| 14 | Voice (2) | Zabawa, Gieseler |
| | (Fall and spring—as arranged) | |
| 15 | Organ (1) | Scribner, Reinburg |
| | (Fall and spring—as arranged; summer 1968) | |

- 16 **Organ** (2) Scribner, Reinburg
(Fall and spring—as arranged)
- 17 **Orchestral Instrument** (1) Staff
(Fall and spring—as arranged; summer 1968)
- 18 **Orchestral Instrument** (2) Staff
(Fall and spring—as arranged)
- 51 **Orchestra** (1) Steiner
Preparation and performance of orchestral literature. Prerequisite: audition before Director. (Fall and spring—evening)
- 52 **Instrumental Ensemble** (2) Steiner
Chamber ensemble groups in addition to orchestra participation. (Fall and spring—as arranged)
- 53 **Chorus** (1) Zabawa
Preparation and performance of choral literature. Prerequisite: audition before Director. (Fall and spring—day)
- 54 **Chamber Choir** (2) Zabawa
Small vocal groups in addition to chorus participation. (Fall and spring—day)

SECOND GROUP

Prerequisite: audition to meet departmental requirements. Required practice: 5 hours a week for one-semester hour courses, 10 hours a week for two-semester hour courses, 12 hours a week for three-semester hour courses.

- 111 **Piano** (1) Tolson, Russell
(Fall and spring—as arranged; summer 1968)
- *112 **Piano** (2 or 3) Tolson, Russell
(Fall and spring—as arranged)
- 113 **Voice** (1) Zabawa, Gieseler
(Fall and spring—as arranged; summer 1968)
- *114 **Voice** (2 or 3) Zabawa, Gieseler
(Fall and spring—as arranged)
- 115 **Organ** (1) Scribner
(Fall and spring—as arranged; summer 1968)
- *116 **Organ** (2 or 3) Scribner
(Fall and spring—as arranged)
- 117 **Orchestral Instrument** (1) Staff
(Fall and spring—as arranged; summer 1968)
- *118 **Orchestral Instrument** (2 or 3) Staff
(Fall and spring—as arranged)

* Only music majors may elect 3 semester hours of credit.

THIRD GROUP

- 211 Piano (3)
(Fall and spring—as arranged)
- 212 Piano (6)
(Fall and spring—as arranged)
- 213 Voice (3)
(Fall and spring—as arranged)
- 214 Voice (6)
(Fall and spring—as arranged)
- 215 Organ (3)
(Fall and spring—as arranged)
- 216 Organ (6)
(Fall and spring—as arranged)
- 217 Orchestral Instrument (3)
(Fall and spring—as arranged)
- 218 Orchestral Instrument (6)
(Fall and spring—as arranged)

Pathology*

Professors T.M. Peery (*Chairman*), W.R. Duryee (*Research—Experimental*),
F.N. Miller, Jr., William Newman
Clinical Professors L.E. Zimmerman (*Ophthalmic Pathology*), J.M. Blumberg,
E.B. Helwig (*Dermatologic Pathology*), G.H. Reifstein
Associate Professors W.L. Marsh, Lois Platt (*Cytology*), Alexander Breslow,
J.C. Smith
Associate Clinical Professors J.S. Howe, V.E. Martens, Theodore Winship, R.E.
Palmer
Assistant Professors F.S. Jannotta, S.G. Kent
Assistant Clinical Professors W.F. Enos, Cornelia Hoch-Ligeti, L.W. Fix, Grace
Guin, E.H. Zeitler, Marjorie Williams, C.B. Cook, D.R. Parkinson, I.D.
Godwin, W.J. Jaffurs, M.A. Weinberger, Floris Garner (*Comparative Pa-*
thology), Gloria Brennan
Instructor E.R. Burns (*Research—Experimental*)
Clinical Instructor P.W. Lampert
Special Lecturer L.C. Johnson

Bachelor of Science in Medical Technology.—Prerequisite: the Medical Technology curriculum, pages 70–71.

Required: the general requirements, pages 74–76, including Biological Sciences 112 and additional second-group Biological Sciences courses as recommended, see pages 78–79; and Pathology 115–16, 117–18, 119–20, offered in the University Hospital.

Doctor of Philosophy fields of study in Pathology: Comparative Pathology and Ophthalmic Pathology.—See pages 83–85, 87–88, for requirements for the degree.

* Staff of Instruction for the academic year 1967–68.

- 115-16 Introduction to Medical Science (1-1)** Marsh and Staff
Lectures for medical technology students on physiology, pathology, and medicine to accompany Pathology 119-20. (Academic year—1 hour a week)
- 117-18 Principles in Medical Technology (4-4)** Marsh and Staff
For medical technology students. Theories, principles, sources of error of methods used in clinical chemistry, clinical bacteriology, serology, hematology, clinical microscopy. (Academic year—4 hours a week)
- 119-20 Medical Technology Laboratory (10-10)** Marsh and Staff
Rotation through University Hospital pathology laboratories: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 12 weeks; blood bank, 6 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (35 hours a week for 50 weeks)
- *201 Pathology (8)** Staff
Inflammations, degenerations, malformations, trauma, neoplasms. Pathology of organ systems; correlation with symptoms and physical signs. Gross and microscopic study of diseased tissues. Rotation on weekend autopsy calls. (Fall—12 hours a week)
- *202 Diagnostic Conferences (1)** Peery, Gusack
(Formerly *Clinicopathologic Correlation Conference*)
Case studies demonstrating pathologic significance of major clinical symptoms and physical signs. (Spring—1 hour a week)
- 256 Cells—Normal and Pathologic (1)** Jannotta, Duryee, Platt
Normal and abnormal cell structure, function, reproduction. Practical problems of cellular diagnosis in cytogenetics, exfoliative cytology, bone marrow studies. (Spring—1 hour a week)
- 262 Problems in Experimental Cellular Pathology (1)** Duryee
Cytological and biochemical aspects of cellular function in relation to normal and selected pathological conditions. (Spring—1 hour a week)
- 283 Anatomical Pathology Clerkship (5 to 30)** Peery and Staff
Participation in the necropsy and surgical pathology service. Prerequisite: Pathology 201. Five semester hours of credit for each 4-week period. Students may receive up to 30 semester hours of credit for 6 months full-time. University Hospital. (Fall or spring—as arranged)
- 295 Comparative Pathology (5 to 30)** Garner and Staff
For graduate students. Participation in veterinary pathology service, including wild and domestic animals. Prerequisite: Pathology 201. Five semester hours of credit for each 4-week period. Students may receive up to 30 semester hours of credit for 6 months full-time. Armed Forces Inst. of Path. (Fall or spring—as arranged)
- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

* Required for medical students; open to limited number of graduate students.

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Pharmacology*

Professor H.G. Mandel (Chairman)

Professorial Lecturers B.B. Brodie, F.E. Hahn

Associate Professors V.H. Cohn, Jr., Paul Mazel, K.S. Kim (Research), S.E. Fabro (Research)

Assistant Professors W.P. Weiss, W.R. Jondorf (Research), G.A. Hahn (Research), Philip Klubes (Research), J.A. Straw

Master of Science in the field of Pharmacology.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree. The undergraduate program must include the following courses or equivalent: Biological Sciences 1-2; Physics 1, 2; Chemistry 11-12, 22, 51-52, 53-54. One year of calculus and a course in physical chemistry are normally recommended but may be taken during the work towards the Master's degree.

Required: the general requirements, pages 83-87, including Biochemistry 221-22; Physiology 201; Pharmacology 201, 299-300. The remaining courses may be selected from Biochemistry 224, 241; Chemistry 156; Microbiology 211, 225, 227, 233; Pharmacology 267, 269, 272, 279, 281, 282, 283.

Doctor of Philosophy fields of study in Pharmacology: Chemotherapy and Molecular Pharmacology, Physiological Disposition of Drugs, Biochemical Pharmacology, and Drug Evaluation.—See pages 83-85, 87-88, for requirements for the degree.

†201 Pharmacology (8)

Mandel and Staff

Lectures, laboratory, conferences on interaction of drugs and biological systems as a basis for rational therapy of disease. Prerequisite: biochemistry and physiology, or approval of Department. (Fall—day)

252 Seminar: Clinical Pharmacology (2)

Weiss

Problems in therapeutics; emphasis on drugs used in treatment of cardiovascular and infectious diseases. Participation in discussions and preparation of lectures. Enrollment limited. (1968-69 and alternate years: spring—day)

254 Frontiers in Pharmacology (1)

Mandel and Staff

Recent advances and fields of research in pharmacology. Most of the material presented by laboratory scientists from neighboring institutions. Medical and graduate students. (Spring—day)

256 Molecular Pharmacology (2)

F. Hahn

Current theory on action of drugs, especially chemotherapeutic agents, at molecular level. Effect of drugs on biosynthetic processes of the cell with respect to DNA, messenger RNA, transfer RNA, ribosomes, protein, cell wall, and intermediary metabolites. Factors which alter action of drugs, such as drug interactions and resistance. Medical and graduate students. (Spring—day)

* Staff of Instruction for the academic year 1967-68.

† Required for medical students; open to graduate students.

- 258 Cancer Chemotherapy (1)** Mandel and Staff
Mechanisms by which drugs inhibit the growth of tumor cells. Medical and graduate students. (1968-69 and alternate years: spring—day)
- 260 Introduction to Statistical Reasoning (1)** Weiss and Staff
Application of statistical methods to biological and experimental questions; emphasis on use of statistics rather than arithmetic. (Spring—day)
- *267 Pharmacological Research (arr.)** Staff
Graduate students. (Fall and spring—day)
- *269 Pharmacology Seminar (1)** Staff
Recent advances in pharmacology. Graduate students. (Fall and spring—day)
- 272 Physiological Disposition of Drugs (3)** Cohn
Fate of drugs in biological tissue. Absorption, distribution, chemical alteration, excretion of drugs; physical, chemical, and biological factors affecting these processes. Graduate and medical students; limited to 20. Prerequisite: Pharmacology 201. (1969-70 and alternate years: spring—day)
- *279 Special Topics in Pharmacology (arr.)** Staff
Selected aspects of drug action. (Fall and spring—day)
- 281 Physiological Techniques in Pharmacology—Lecture (2)** Mazel, Straw
Physiological techniques for obtaining information on mechanism and site of action of pharmacological agents. Graduate and medical students; limited to 20. Pharmacology 281 may be taken without 282. Prerequisite: Pharmacology 201. (1969-70 and alternate years: spring—day)
- 282 Physiological Techniques in Pharmacology—Laboratory (2)** Mazel, Straw
Accompanies Pharmacology 281. Prerequisite: Pharmacology 201. Prerequisite or concurrent registration: Pharmacology 281. (1969-70 and alternate years: spring—day)
- 283 Biochemical Techniques in Pharmacology (3)** Cohn
Lectures and laboratory. Theory and practice of modern biochemical techniques applicable to study of metabolic fate and mechanism of action of drugs. Graduate students. Prerequisite: Pharmacology 201. (1968-69 and alternate years: spring—day)
- 299-300 Thesis Research (3-3)** Staff
Required of Master's candidates. (Academic year—as arranged)
- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

* Content differs each time the course is offered; may be repeated once for credit toward a Master's degree.

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Philosophy*

Professor Thelma Z. Lavine

Associate Professor R.H. Schlagel (*Chairman*)

Assistant Professors C.H. Pfuntner, W.B. Griffith

Bachelor of Arts with a major in Philosophy (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69.

Required: in addition to the general requirements, pages 74–78, the passing of the Philosophy major examination at the end of the senior year. The coordinated knowledge upon which the student will be examined is the following: (1) history of philosophy and (2) problems of philosophy. A proseminar (Philosophy 199–200) assists the student in preparing for the major examination.

Master of Arts in the field of Philosophy.—Prerequisite: an undergraduate major in Philosophy at this University or equivalent, as attested by passing this University's major examination in Philosophy; the following courses or equivalent: Philosophy 111–12, 113, 121, 132, and 152.

Required: the general requirements, pages 83–87. As much as possible of the required course work must be in third-group courses. If second-group courses are elected, students are required to do more intensive and extensive work than undergraduates. A general written examination in two areas of Philosophy and an oral examination in the student's special field are required in addition to a Master's thesis of substantial length.

Master of Arts in the field of Linguistics.—See pages 287–89 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

FIRST GROUP**51–52 Introduction to Philosophy (3–3)**

Staff

Problems of modern philosophy in relation to scientific and social developments since the Renaissance. *First half:* theories of knowledge. *Second half:* theories of reality. Philosophy 51 or 52 may be taken independently.
(Academic year—day and evening; summer 1968)

71 Philosophy and Literature (3)

Lavine

Philosophical foundations of psychoanalytical psychiatry, existentialism, and Marxism and their expression in literature, e.g., in the works of Mann, Kafka, Camus, Sartre, Malraux, Silone, and Koestler. (Spring—day)

SECOND GROUP**111–12 History of Ancient and Modern Philosophy (3–3)**

Pfundtner

(Formerly *History of Philosophy*)

History of Western philosophy from early Greece to Kant, seen as the development and modification of the Hellenic cultural pattern. (Academic year—evening)

* Staff of Instruction for the academic year 1967–68.

- 113 **19th Century Philosophy** (3) Lavine
European philosophy from Kant to Nietzsche. (Fall—day)
- 121 **Introduction to Logic** (3) Griffith
Systematic study of the principles of valid inference with attention to the development of skill in logical analysis and evaluation of arguments, and to the theory of formal systems. (Fall—day)
- 122 **Advanced Logic** (3) Griffith
Theory of logical systems; their applications, e.g., to scientific explanation, computer theory; implications for philosophy of logic. Prerequisite: Philosophy 121 or Mathematics 101, or permission of instructor. (Not offered 1968–69)
- 131 **Ethics** (3) Griffith
Theories of “the good” and “the right” from Plato to Sartre. (Spring—day)
- 132 **Social Philosophy** (3) Lavine
Social philosophies from Luther to Marxism and Fascism. (Spring—day)
- 151 **Myth, Science, and the Modern Mind** (3) Schlager
(Formerly *Philosophy of Science*)
Comparison of the mythical and scientific outlook; emphasis on the development and nature of scientific explanation from Copernicus to Einstein. (Fall—day)
- 152 **Epistemology** (3) Schlager
Inquiry into the basis and structure of knowledge, the problem of perception, and the meaning and criteria of truth. (Spring—day)
- 162 **Aesthetics** (3) Pfuntner
Nature of aesthetic experience, problems of appreciation and criticism in the arts, and theories of artistic creation. Emphasis on contemporary arts and criticism. (Spring—day; summer 1968)
- 172 **American Philosophy** (3) Pfuntner
Philosophies of Peirce, Royce, James, Dewey, Santayana, and Whitehead as representatives of American thought. (Fall—day)
- 180 **Philosophy of History** (3) Lavine
Critiques of philosophies of history: the idea of progress, historicism, Hegelian-Marxian dialectic, cyclical and social-scientific views. Contemporary problems of historical knowledge. (Fall—day)
- 193 **Contemporary European Philosophy** (3) Griffith
Main currents of 20th century European philosophy: the British analytic movement, positivism, phenomenology, existentialism. (Spring—day; summer 1968)
- 196 **Philosophy of Language** (3) Schlager
Examination of the relation of language to thought and philosophical problems pertaining to symbolism, meaning, linguistic reference, logical form, and linguistic relativity. Readings from Cassirer, Langer, Wittgenstein, Whorf, etc. (1969–70 and alternate years: spring—day)

199-200 Proseminar: Readings in Philosophy (3-3)

Staff

Conferences and group discussions in preparation for field-of-study major examination. (Academic year—evening)

THIRD GROUP**201-2 Readings and Research (3-3)**

Staff

Advanced readings and reports. Investigation of special problems. (Academic year—as arranged)

211 Seminar: Plato (3)

Griffith

Developments of Plato's thought from the early "Socratic" dialogues to the later systematic works. (Fall—evening)

216 Seminar: Kant (3)

Lavine

Critique of Pure Reason. (1969-70 and alternate years: spring—evening)

231 Seminar: Ethical Theory (3)

Griffith

Readings in recent ethical philosophy. (1969-70 and alternate years: fall—evening)

251 Seminar: Philosophy of Science (3)

Schlagel

Intensive study of selected problems in the historical and theoretical foundations of science. (1969-70 and alternate years: fall—evening)

252 Seminar: Epistemology (3)

Schlagel

Topic for 1968-69: the problem of perception. (Fall—evening)

262 Seminar: Aesthetics (3)

Pfuntner

A study of selected problems. (1969-70 and alternate years: spring—evening)

272 Seminar: American Philosophy (3)

Pfuntner

Important American contributions to theories of the self, society, and history. (Spring—evening)

280 Seminar: Philosophy of History (3)

Lavine

Current issues concerning the problem of historical knowledge. (Spring—evening)

299-300 Thesis Research (3-3)

Staff

Physical Education***DEPARTMENT FOR MEN**

Professors W.H. Myers (*Emeritus*), R.G. Hanken, V.J. DeAngelis (*Chairman*)
Professorial Lecturers W.D. Thompson, Harry Pitt
Associate Professorial Lecturers J.R. Grinnell, L.R. Tucker

* Staffs of Instruction for the academic year 1967-68.

Assistant Professors C.B. Reed, R.J. Hornfeck
 Assistant Professorial Lecturer Martha Jesnak
 Instructors S.J. Korchek, L.G. Usiskin, B.P. Berube

This Department includes all the recognized athletic activities of the men students of the University except intercollegiate athletics. The student furnishes gymnasium uniforms and personal equipment.

DEPARTMENT FOR WOMEN

Professors Elizabeth Burtner, Loretta Stallings (*Chairman*)
 Associate Professors Lyndale George, Jeanne Snodgrass, Maida Withers
 Associate Professorial Lecturer Evelyn DeBoeck
 Assistant Professors Gayle Clapp, Donna Abbey, Nan Smith, Honey Nashman
 Assistant Professorial Lecturer Mabel McEwan
 Instructors Nancy Johnson, Judith Young
 Lecturers Calva Collier, Barbara Katz

Four semesters of Physical Education (Physical Education 5 or 6) are required for graduation, except for those students exempt under the regulations stated on pages 67-68.

A medical examination is required before participation in physical education activities.

Bachelor of Science in Physical Education.—Prerequisite: the Physical Education for Men or the Physical Education for Women curriculum, page 72. The requirements for the degree are stated on pages 93-94, 106-7.

Within the curriculum leading to the degree of Bachelor of Science in Physical Education there is opportunity for specializing in dance, health education, or adapted physical education.

Bachelor of Arts in Education with (1) a major in secondary education combined with a minor teaching field in Physical Education and (2) a major in elementary education with an area of specialization in Physical Education.—See pages 93-96, 102, 105-6.

Bachelor of Arts in Education with a teaching field in Dance.—Prerequisite: the Education curriculum, pages 71-72.

Required: the Dance option and the professional courses listed on pages 97-98, 105.

Master of Arts in Education with a field in Physical Education.—See pages 107-10.

The University is not responsible for injuries received in intramural games, or in any of the activities of the departments of Physical Education; and the student assumes full responsibility therefor.

Courses with titles followed by the parenthetical designation (men) are available to men students only; those with titles followed by the parenthetical designation (women) are available to women students only.

FIRST GROUP

*5 Physical Education Activities (1) (men)

Staff

(Replaces former Physical Education for Men 1, 2, 11, and 12)

Two periods of supervised activity a week. May be repeated for credit not to exceed 4 semester hours. (Fall and spring—as arranged; summer 1968—offered as Physical Education 1-2 and 11-12)

* A Physical Education fee of \$4.50 a semester is required for registration in one or more of the activity courses.

***†6 Physical Education Activities (1) (women)**

Staff

(Replaces former Physical Education for Women 1, 2, 11, and 12)

Classes for first-year students meet three periods a week in activities recommended on the basis of the physical education placement test; classes for second-year students meet two periods a week and are chosen from the activities offered each semester. May be repeated for credit not to exceed 4 semester hours. (Fall and spring—day; summer 1968—offered as Physical Education 1-2 and 11-12)

41 Personal Health and First Aid (1 or 2)

Usiskin

Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowledges for the future teacher. First aid training includes Red Cross certification (standard and advanced). (Spring—day)

***43-44 Techniques of Physical Education Activities (1 to 3-1 to 3) (women)**

Staff

(Formerly Physical Education Motor Activities)

Techniques, rules, and organization. Open to nonmajors who have completed 4 semester hours of Physical Education 6 or equivalent. (Academic year—day)

45 Techniques of Physical Education Activities (1 to 3) (men)

Korcheck

(Formerly Physical Education for Men 43, Physical Education Motor Activities)

Golf, bowling, touch football. Open to nonmajors who have completed 4 semester hours of Physical Education 5 or equivalent. (Fall—day)

46 Techniques of Physical Education Activities (1 to 3) (men)

Hornfeck

(Formerly Physical Education for Men 44, Teaching in Secondary Schools)

Tennis, swimming, wrestling. Open to nonmajors who have completed 4 semester hours of Physical Education 5 or equivalent. (Spring—day)

49 Human Anatomy (3)

Stallings

Structure of the human body. Basic course for physical education majors; open to nonmajors. Prerequisite: Biological Sciences 1-2. (Fall—day)

50 Kinesiology (3)

Berube

Anatomical mechanism of movement, analysis of the action of muscles in sports and daily living. Prerequisite: approved course in anatomy. (Spring—day)

51-52 Teaching Physical Education Activities (2 or 3-2 or 3) (women)

Staff

First half: basketball, tennis, and badminton. *Second half:* softball and archery. (1969-70 and alternate years: academic year—day)

***‡56 Dance Technique and Theory (1)**

Withers

Advanced work in the techniques of contemporary modern dance. Prerequisite: the introductory and intermediate dance electives offered in Physical Education.

* A Physical Education fee of \$4.50 a semester is required for registration in one or more of the activity courses.

† Students whose medical examinations indicate the desirability for remedial or restricted activity are assigned to programs especially adapted to their needs.

‡ Physical Education 56, 109, and 110 replace former 53. Students who have received credit for 53 may not receive credit for 56, 109, or 110.

ical Education 6, former Physical Education 1-2 or 11-12, or equivalent.
May be repeated once for credit. (Spring—day; summer 1968—Dance
Workshop)

- 59-60 **Teaching Secondary School Team Sports** DeAngelis, Korcheck,
(2 to 4-2 to 4) (men) Usiskin, Hornfeck
Football, basketball, baseball, track and field. (Academic year—day)

SECOND GROUP

- 101 **Physical Education in the Elementary School** (3) Snodgrass
For physical education majors and teaching specialists. Philosophy; age
characteristics and their implications for the organization of school and
playground programs; curriculum, techniques of teaching, evaluation, inte-
gration of subject-matter areas. (Not offered 1968-69)
- 103 **History and Principles of Physical Education** (3) DeAngelis
History as it relates to contemporary physical education; aims, objectives,
and philosophy. (Fall—day)
- 105 **Adapted Physical Education and Physical Examinations** (3) Nashman
Cause and correction of faulty body mechanics, physical examinations for
the detection of postural defects, prescription of exercises, and program
adaptation. Prerequisite: Physical Education 49 and 50. (Fall—day)
- 107 **Teaching Recreational Dance** (1 or 2) Burtner
Methods and materials for teaching the folk and social forms of dance.
(Fall—day)
- *109 **Dance Composition I** (1 or 2) Withers
Basic elements and principles of composition. (Fall—day)
- *110 **Dance Composition II** (1) Withers
Advanced problems in composition. May be repeated once for credit.
(Spring—day; summer 1968—Dance Workshop)
- 111-12 **Teaching Physical Education Activities** (2 or 3-2 or 3) Staff
(women)
First half: field hockey, soccer, and speedball. *Second half:* gymnastics,
tumbling, and track and field. (1968-69 and alternate years: academic
year—day)
- †113-14 **Practice in Teaching Activities** (2 to 4-2 to 4) George, Hanken
Principles and methods applied to teaching physical education activities.
Supervised laboratory. (Academic year—day)
- 115-16 **Intramural Program Organization** (2-2) Usiskin
Principles of administration, organization, and supervision in junior high
school, senior high school, and college programs. (Academic year—
day)

* Physical Education 56, 109, and 110 replace former 53. Students who have received credit for 53
may not receive credit for 56, 109, or 110

† A Physical Education fee of \$4.50 a semester is required for registration in one or more of the
activity courses.

- *117 Teaching Modern Dance (2 or 3)** Burtner
Methods of teaching modern dance: technique, improvisation, and composition. Analysis of accompaniment. Secondary, college, adult levels. (1968-69 and alternate years: fall—evening)
- *118 Dance Production (2 or 3)** Burtner
Planning, choreographing, and staging of dance: demonstrations, concerts, musicals, plays, festivals, lighting, costuming, sets, make-up, accompaniment. (1968-69 and alternate years: spring—evening)
- 119 Creative Dance for Children (3)** Withers
Exploration and understanding of creative movement for children. Evaluation of methods and materials. Dance for children with special education problems. (Fall—day)
- 120 Repertory (1)** Withers
Study and performance of completed dance works. Admission by permission of instructor. May be repeated once for credit. (Summer 1968—Dance Workshop)
- 121 School and Community Health Programs (3)** Castell†
Health services, healthful environment, health instruction, sources of material for general health knowledge. (Fall—evening)
- 122 Methods and Materials for Health Education (3)** Stallings
Curriculum planning and organization, methodology, selection and use of materials of health education, evaluation, basic health knowledge. (Spring—day)
- 131 Tests and Measurements in Physical Education (3)** Reed
Lecture (2 hours), conference (1 hour). Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day)
- 132 Camp Leadership (1 or 2)** Clapp
Philosophy and techniques of camp counseling; survey of organization and program including outdoor education. Open to nonmajors. (Spring—day)
- 134 Rhythmic Analysis through Creative Movement (3)** DeBoeck
Pulse, meter, phrase, simple music notation, and analysis of elementary forms of music composition. Sensory and ideational stimuli, music, poetry, and the visual arts as motivation for improvisation and choreography. Prerequisite: one semester of modern dance or ballet, or equivalent. (Spring—day)
- 135-36 Survey of Dance History (3-3)** Burtner
Dance from primitive ritual to contemporary folk, art, and ethnic forms. Practical work in dance included. *First half:* prehistoric to 20th century. *Second half:* 20th century. (1969-70 and alternate years: academic year—evening)

* A Physical Education fee of \$4.50 a semester is required for registration in one or more of the activity courses.

† Dr. Castell is Assistant Clinical Professor of Medicine in the School of Medicine.

138 Organization and Administration of Physical Education (3) DeAngelis, George

Organization and administration of elementary, secondary, and college programs. Plants, fields, equipment, and programs. (Spring—as arranged)

151-52 Recreational Leadership Activities (3-3) Tucker

Laboratory practice in the basic skills of crafts, music, arts, physical and social activities. *First half:* preschool-age child. *Second half:* teenage and adult. (1969-70 and alternate years: academic year—evening)

158 Safety Education (3) Reed

Liability, prevention, and emergency care of all types of injuries with reference to first aid and athletics. Proper use of personnel, facilities, and equipment. Red Cross certification as an instructor. Prerequisite: Biological Sciences 1-2. (Spring—day)

164 Physiology of Exercise (3) Berube

The physiological functions of the body and the effect of exercise on these functions. (Fall—evening)

THIRD GROUP

201 Philosophy of Physical Education (3) Stallings

Concepts of philosophy and philosophic method applied to objectives, principles, and practice in physical education. (Fall—evening)

202 Motor Learning (3) Stallings

Physiological and psychological correlates of motor learning with implications for teaching methods and training schedules. (Spring—evening)

211 Problems and Modern Trends in Physical Education (3) Hanken

Lecture (2 hours), conference (1 hour). For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (Summer 1968)

215 Administration of High School Athletics (3) Millan*

Offered only by the College of General Studies in off-campus centers. Open only to majors in Physical Education. Lecture (2 hours), conference (1 hour). For the prospective high school athletic director. The philosophy, principles, and procedures essential for the administration and development of a sound athletic program. (Fall—evening)

216 Organization and Administration of Physical Education (3) DeAngelis

Lecture (2 hours), conference (1 hour). Basic concepts of the organization and administration of physical education at the secondary and college levels; human relations and administration presented through the "case method"; actual cases of typical administrative problems analyzed and discussed. (Summer 1968)

220 Problems in Health Education (3) Jesnak

Lecture (2 hours), conference (1 hour). Health needs, policies and program planning, use of community resources, promising practices in the field. (Fall—evening)

* Mr. Millan is Assistant Professorial Lecturer in Physical Education in the College of General Studies.

- 230 Elementary School Physical Education (3)** Snodgrass
For elementary education majors and classroom teachers. Current philosophy, trends, and research; their implications for curriculum, instruction, integration of subject matter, and evaluation. (1968 and alternate summers)
- 231 Evaluation in Physical Education (3)** Reed
Lecture (2 hours), conference (1 hour). Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. (Summer 1968)
- 240 Adapted Physical Education (3)** Nashman
Etiology and evolution of orthopedic, neurological, cardiovascular, and other handicapping conditions; adaptation of the physical education program to meet individual needs. (Spring—evening)
- 250 Recreation and Outdoor Education (3)** Thompson
Lecture (2 hours), conference (1 hour). Current trends in philosophy, principles, practices, and programs for outdoor education, camping, and community-school relationships. (Fall—evening)
- 261 Driver and Safety Education I (3)** Scott*
History, scope, objectives. Automobile construction and maintenance, traffic accidents, laws, regulations, sound driving practices, responsibilities, and liabilities; emphasis on practice driving laboratory experiences. (Fall—evening)
- 262 Driver and Safety Education II (3)** Scott*
Methods and techniques of conducting programs, pupil and program evaluation, research, planning, organization and instruction in modern approaches, laboratory and direct experiences in the utilization of multiple car and simulator approaches to instruction. (Spring—evening)
- 264 Safety Education (3)** Castell†
Extraneous influences that cause vehicular accidents—such as alcohol, drugs, suicidal tendencies, emotional and psychological factors, medical reasons—and their effects upon driver safety. (Spring—evening)
- 271-72 Dance Notation (3-3)** Katz
Study of Labanotation. *First half*: leads to elementary certification; effort-shape notation included. *Second half*: intermediate level. Special project: study and reconstruction of notated works of 20th century choreographers of American modern dance. (1969-70 and alternate years: academic year—day)
- ‡273 Advanced Choreography (3)** Burtner
Advanced problems in creative movement and composition. Choreographing of group and solo works in dance. (Fall and spring—as arranged: summer 1968)

* Appointment effective September 1968.

† Dr. Castell is Assistant Clinical Professor of Medicine in the School of Medicine.

‡ May be repeated once for credit.

- 277 Dance Expressions in Selected Cultures** (3 or 6) Burtner
Study of ethnic forms of dance through reading and participation. Study may be done in the United States or the country of the dance being studied. (Fall and spring—as arranged; summer 1968)
- 280 Supervision of Physical Education, Health, and Recreation** (3) George
Lecture (2 hours), conference (1 hour). Purpose and value, principles, prevalent concepts, best accepted techniques. (1968 and alternate summers)
- *297 Advanced Topical Studies** (3) DeAngelis, Stallings
Individual studies; critique and synthesis of research findings and of literature. Prerequisite: Education 295. (Fall and spring—as arranged; summer 1968)

Physics†

Professors G.M. Koehl, Herbert Jehle, H.H. Hobbs (*Chairman*), Julian Eisenstein, Otto Bergmann, A.J. Zuchelli
Associate Professor Francisco Prats
Associate Professorial Lecturers H.H. Landon, Jr., Herbert Rabin
Assistant Professors Margaret Montzka, J.M. Harrison, N.K. Khatcheressian
Assistant Professorial Lecturers W.C. Parke, Ronald Andrews
Instructors C.G. Dease, Mohammad Fatemi

Bachelor of Arts or Bachelor of Science in Physics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Physics 1, 30, 31–32, 51–52; Chemistry 11–12; Mathematics 21, 22, 23, and 24.

Required: for the Bachelor of Arts degree and the Bachelor of Science degree: the general requirements, pages 74–78, including Physics 151, 161, 162, 163, 164, 165–66, 167–68; six hours selected from Mathematics 124, 134, 139, 140, 142; Statistics 97.

Master of Arts in the field of Physics.—Prerequisite: a Bachelor's degree with a major in Physics at this University, or equivalent.

Required: the general requirements, pages 83–87, including Physics 231, 232, 233–34, 235, 236, 291, plus one of the following: 241, 242, 243, 244, 245, or 251–52.

Doctor of Philosophy fields of study in Physics: Experimental Solid State Physics (Behavior of Electrons in Solids, Growth and Perfection of Crystals, Magnetic Properties of Solids at Low Temperatures, Mössbauer Effect), and Theoretical Physics (Biophysics, Elementary Particles, Field Theory, General Relativity, Magnetic and Optical Properties of Solids, Molecular Structure, Nuclear Scattering, Quantum Mechanics).—See pages 83–85, 87–88, for requirements for the degree.

Doctor of Philosophy in the field of Biophysics (an interdepartmental field offered by the departments of Biological Sciences, Physics, and Physiology, see pages 201–3).—See pages 83–85, 87–88, for requirements for the degree.

Bachelor of Arts in Education with a teaching field in Physics.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Physics option and the professional courses listed on pages 102–3, 105.

* May be repeated once for credit.

† Staff of Instruction for the academic year 1967–68.

Departmental prerequisite: Physics 31-32 or equivalent, and consent of a departmental adviser, are prerequisite to all second-group courses in Physics.

FIRST GROUP

1 General Physics (4) Staff

Topics in classical physics which form a foundation for modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration for Mathematics 6. Laboratory fee, \$11. (Fall—day and evening; spring—day; summer 1968)

2 General Physics (4) Staff

Electricity, magnetism, and selected topics from modern physics. Prerequisite: Physics 1 or equivalent. Laboratory fee, \$11. (Fall—day; spring—day and evening; summer 1968)

30 Introductory Modern Physics (4) Staff

(Formerly General Physics)

Introduction of concepts in modern physics and laboratory techniques necessary for the more advanced work in Physics 31 through 52. Prerequisite: Physics 1 or equivalent and one semester of calculus. Physics 1 may be waived on the basis of the College Entrance Examination Board Achievement Test or by a departmental examination prior to registration. Laboratory fee, \$11. (Spring—day and evening)

31-32 Introduction to Theoretical Physics (2-2) Staff

Theoretical structure of physics, emphasis on appropriate analytical techniques. Prerequisite: one year of calculus and Physics 30. (Academic year—as arranged; summer 1968)

51-52 Introduction to Experimental Physics (2-2) Staff

Experiments and lectures on the basic phenomena of physics and techniques of experimentation. Prerequisite: Physics 2 or 30, and one year of calculus. Material fee, \$11 a semester. (Academic year—day and evening)

SECOND GROUP

116 Quantum and Solid State Physics (3) Staff

Concepts in quantum mechanics leading to study of electron behavior in solids. Prerequisite: Physics 32, 52; Mathematics 111. (Spring—even-
ning)

151-52 Intermediate Laboratory (2-2) Staff

Independent advanced work to introduce student to laboratory and shop techniques and the use of specialized instruments. Prerequisite: Physics 51-52. Laboratory fee, \$11 a semester. (Academic year—as arranged)

161 Mechanics I (3) Staff

Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertia tensor, small vibrations, and elements of Lagrange's and Hamilton's equations. (Fall—as arranged)

162 Mechanics II (3) Staff
 Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids.
 (Spring—as arranged)

163 Optics (3) Staff
 Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion. (Fall—as arranged)

164 Thermodynamics (3) Staff
 Basic principles of thermodynamics, reversible changes, applications to simple systems, thermodynamic potentials, phase equilibrium. (Spring—as arranged)

165-66 Electromagnetic Theory (3-3) Staff
 Development of Maxwell's field equations using vector and tensor calculus, electrostatics, stationary and nonstationary phenomena, basic circuit theory, electromagnetic waves and radiation. (Academic year—as arranged)

167-68 Modern Physics (3-3) Staff
 Experimental basis of modern physics; introduction to quantum mechanics and statistical mechanics with applications to atomic and nuclear physics. (Academic year—as arranged)

170 Elementary Solid State Physics (3) Staff
 Dielectric and magnetic properties of solids, behavior of electrons in metals and semi-conductors, lattice defects. (Spring—evening)

172 Biophysics (3) Jehle
 Biosynthesis of macromolecules: physical basis of nucleic acid replication, transcription and translation; information theory. Specificity of interaction of cells in reaggregation and morphogenesis. Symmetry in biological organization. (Spring—as arranged)

175 Nuclear Physics (3) Landon
 Structure and stability of atomic nuclei, nuclear transformations and reactions, radiations of nuclei, fission. (Fall—as arranged)

THIRD GROUP

Consent of a departmental graduate adviser is required for admission to all third-group courses in Physics.

231 Electromagnetic Theory: Macroscopic Effects (3) Staff
 Aspects of electromagnetism having to do with fields in the vacuum and in media, their determination in terms of physical boundary conditions and their effects upon charges and matter; definition of field quantities, experimental field relations, solutions for the fields, effects of dielectrics and magnetic media, time dependent solutions, and basic aspects of optics.
 (Fall—as arranged)

232 Advanced Mechanics (3) Staff
 Analytic methods of mechanics as a basis for modern theory: variational principles, Lagrange's equations, Hamiltonian formulation, canonical trans-

formations, classical perturbation theory, transition to continuum.
(Spring—as arranged)

233-34 Quantum Mechanics (3-3)

Staff

General aspects of quantum mechanics with emphasis upon the developmental principles involved. Operators, representations and transformation theory, Schrodinger and Heisenberg pictures, angular momentum, perturbation theory, scattering theory. (Academic year—as arranged)

235 Special Relativity (3)

Staff

Application of relativistic concepts to the basic fields of physics: space and time, tensors and covariant mechanics of point particles, covariant form of electromagnetism, relativistic variational principles, relativistic quantum equations. (Fall—as arranged)

236 Electromagnetic Theory: Electrodynamics and Radiative Effects (3)

Staff

Lienard-Wiechert potentials, multipole fields, covariant methods, the self-field problem, and classical radiation theory. (Spring—as arranged)

241 Statistical Mechanics (3)

Atomic configurations under thermodynamic conditions using partition functions and cluster expansion techniques; ideal and nonideal gases; electron plasmas; changes of state. (Fall—as arranged)

242 Atomic and Molecular Structure (3)

Jehle

Structure of atoms and molecules, energy levels, binding energy, optical activity. Hartree and Hartree-Fock equations, spin-effects, rotational and vibrational effects, paramagnetic resonance, chemical binding. (Spring—as arranged)

243 Solid State Physics: Structure and Binding (3)

Eisenstein

Atomic structure of solids and analysis of the binding of crystals. Crystal-line forms and symmetries, atomic vibrations and specific heats, sound and optical propagation, crystalline defects. (Fall—as arranged)

244 Solid State Physics: Electronic Processes in Metals (3)

Eisenstein

Phenomena in metals and semi-conductors determined by the electronic states allowed: binding, specific heats, magnetic properties, transport phenomena. Independent particle approximation and many-body aspects are discussed. (Spring—as arranged)

245 Quantum Electrodynamics: Theory and Applications (3)

Zuchelli

A presentation of the lower order effects depending upon the quantal nature of the electromagnetic field: Hamiltonian formulation and field quantization, perturbation calculations, Compton effect, photoelectric effect, electron-electron scattering, pair creation and annihilation, indices of refraction, divergence difficulties. (1968-69 and alternate years: fall or spring—as arranged)

246 Quantum Field Theory (3)

Bergmann

Covariant presentation of general theory of quantized fields, Boson and Fermion fields, theory of S-matrix, dispersion relations, and renormalization program. (1968-69 and alternate years: spring—as arranged)

- 247 Nuclear Theory (3)** Prats
Nuclear interactions, nuclear models, theory of nuclear reactions, pion physics and weak interactions. (Fall—as arranged)
- 248 Elementary Particles (3)** Jehle
Scalar, vector, and spinor fields and their particle aspects, weak and strong interactions, symmetry properties and conservation laws. (As arranged)
- 249 Statistical Processes (3)** Zuchelli
Extension of statistical concepts to irreversible processes. Ergodic behavior, classical and quantum approaches to irreversible effects in large systems, master equations, recurrence paradox and development of thermodynamic concepts. (Fall—as arranged)
- 250 Selected Topics in Modern Physics (3)** Staff
Complements the established curriculum by affording formal instruction in topics of immediate interest to the development of physics and in particular to the members of the graduate research group. May be repeated for credit with permission of graduate adviser. (Fall and spring—as arranged)
- 251-52 Laboratory (2-2)** Staff
Individual work on special topics. Laboratory fee, \$11 a semester. (Academic year: Saturdays—as arranged)
- 254 General Theory of Relativity (3)**
Physical principles and mathematical methods underlying Einstein's field equation, geodesic equations of motion, checks of the theory, action principle, conservation laws, perturbation theory, gravitational radiation theory, relativistic cosmology. (Spring—as arranged)
- 291 Seminar (1)** Staff
Individual investigation of special problems. All students registered for Master's degree in physics are expected to attend this seminar during residence for the degree, and to take part in its programs. Credit for participation in the seminar work is obtained during the last two semesters of residence; this credit, however, is based upon the seminar work during the entire period of residence. May be repeated once for credit. (Fall and spring—evenings)
- 299-300 Thesis Research (3-3)** Staff
(Academic year—as arranged; summer 1968)

FOURTH GROUP

- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 Dissertation Research (arr.)** Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Physiology*

Professors C.S. Tidball (*Chairman*), R.A. Kenney (*Visiting*)

Professorial Lecturers L.L. Langley, Leonard Laster

Associate Professors Elizabeth Tidball (*Research*), Shirley Johnson

Associate Professorial Lecturers P.G. Nelson, Q.L. Hartwig, R.J. Podolsky,

W.A. Hagins

Assistant Professors Marie Cassidy, Elizabeth Stephenson, T.K. Chowdhury,

M.J. Jackson

Assistant Professorial Lecturers Richard Moore, W.L. Haskell, Carl-Eric Elwin,

John Ross, Jr., Brunhild Stuerckow

Master of Science in the field of Physiology.—Prerequisite: a Bachelor's degree. No major is specified, but the undergraduate program must have included the following courses or equivalent: Biological Sciences 1–2; Chemistry 11–12, 22, 51–52, 53–54; Mathematics 21, 22; Physics 1, 2.

Required: the general requirements, pages 83–87. In addition to the thesis, the thirty hours of required work should include Physiology 201, 221, 298, and at least three semester hours of research (Physiology 295).

Doctor of Philosophy fields of study in Physiology: Applied Physiology, Cardiovascular Physiology, Cellular Physiology, Endocrine Physiology, Gastrointestinal Physiology, Neurophysiology, Renal Physiology, and Respiratory Physiology.—See pages 83–85, 87–88, for requirements for the degree.

Doctor of Philosophy in the field of Biophysics (an interdepartmental field offered by the departments of Biological Sciences, Physics, and Physiology, see pages 201–3). —See pages 83–85, 87–88, for requirements for the degree.

Departmental prerequisite: Physiology 201 or equivalent is prerequisite to all other courses in Physiology.

201 Physiology (8)

Required for medical students; open to graduate students. *Lecture* (6 hours), *laboratory* (6 hours), *conference* (2 hours). Cellular, organ system, and applied mammalian physiology. Prerequisite for graduate students: Anatomy 201 or equivalent, Biological Sciences 104, Biochemistry 201 or 221–22 (Biochemistry 222 may be taken concurrently), or consent of Chairman of Department. Nonmedical students please note that the first meeting of the course occurs one week before the start of University campus classes. (Spring—day)

†221 Seminar (1)

Staff and student presentations from literature. Present work discussed. experimental design and scientific deduction evaluated. Topics to be announced. Prerequisite: a reading knowledge of French or German. (Fall and spring—day)

251 History of Medicine (1)

Survey of the great contributors to physiology and medicine in the context of the times in which they lived and worked. (Fall—day)

* Staff of Instruction for the academic year 1967–68.

† Content differs each time the course is offered; may be repeated for credit.

- 252 Physiological Basis of Sexuality (1)** Staff
Conference 1 hour a week. Human reproduction, neonatal changes, contraception, sterility; their implications on patient counseling. (Fall—day)
- 253 Clinical Applications of Physiology (1)** C. Tidball
Conference 1 hour a week. Emphasis on acid-base and fluid-balance physiology and their relation to clinical problems. (Not offered 1968–69)
- 255 Introduction to Electrocardiography (1)** Caceres
Offered jointly by Department of Physiology and the Public Health Service Instrumentation Field Station. Cardiac electrical activity, means used to record it, application of these principles to diagnosis of cardiac disease. (Fall—day)
- 257 Evaluation of Medical Literature (1)** Stephenson
Conference 1 hour a week. Provides the medical student with criteria for analyzing published medical and scientific reports. (Not offered 1968–69)
- 259 Introduction to Electron Microscopy (3)** Cassidy
Lecture (2 hours), laboratory as arranged. Basic theory of electron microscopy and its application to biological investigative studies. Limited registration. Admission by permission of instructor. (Fall—day)
- 261 Gastrointestinal Physiology (2)** Staff
Lecture or conference 2 hours a week. Physiological approach to such clinical problems as peptic ulcer, malabsorption, ulcerative colitis, hepatitis, and others. (Not offered 1968–69)
- 262 Cardiovascular Physiology (2)** E. Tidball
Lecture or conference 2 hours a week. An overview of cardiovascular physiology at an advanced level. (Not offered 1968–69)
- 263 Endocrine Physiology (2)** Jackson
Lecture or conference 2 hours a week. Basic physiology underlying clinical derangements involving abnormal endocrine function. (Not offered 1968–69)
- 264 Introduction to Experimental Medicine (2)** Laster
Lecture or conference 2 hours a week. Recent research contributions to a better understanding of medicine. (Fall—day)
- 266 Physiology of Blood (2)** Johnson
Lecture or conference 2 hours a week. Fundamentals of hematology as they relate to specific clinical situations. (Fall—day)
- 267 Renal Physiology (2)** Kenney
Lecture or conference 2 hours a week. An overview of renal physiology at an advanced level. (Not offered 1968–69)
- 271 Electronic Instrumentation (3)** Chowdhury
Lecture (2 hours), laboratory (2 hours). Fundamentals of electronics and their application to the measurement of physiological phenomena. Prerequisite: Mathematics 22; Physics 1, 2; and consent of instructor. (1969–70 and alternate years: fall)

***295 Research (arr.)**

Staff

By special arrangement with individual Staff members. Approximately 4 clock hours in the laboratory for each semester hour credit. (Fall and spring—as arranged)

298 Comprehensive Physiology (2)

Staff

Guided review of selected areas of physiology appropriate to the student's graduate program. This course satisfies the requirements for the Master's Comprehensive Examination, the Field Examination for doctoral students minoring in physiology, and Part I of the Cumulative General Examination in Physiology. Prerequisite or concurrent registration: Physiology 221. (Fall—as arranged)

299-300 Thesis Research (3-3)**396 Advanced Reading and Research (2)**

Staff

Limited to students preparing for the Doctor of Philosophy general examination. Tutorial literature survey of a subfield of physiology and of pertinent areas of the candidate's minor field. This course satisfies the requirement for Part II of the Cumulative General Examination in Physiology. (Fall and spring—as arranged; summer 1968)

398 Development of Dissertation Problem (2)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. Preparation for written and oral presentation of dissertation problem. This course satisfies the requirement for Part III of the Cumulative General Examination in Physiology. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Political Science†

Professors J.W. Brewer, W.H. Kraus (*Chairman*), Kurt London, R.E. Purcell, H.M. Stout, H.L. LeBlanc, Benjamin Nimer, H.C. Hinton, Andrew Gyorgy
Professorial Lecturers F.M. Riddick, F.L. Hadsel, Arturo Morales-Carrion, P.B. Taylor, Jr.

Associate Professor R.S. Jordan

Associate Professorial Lecturers William Lewis, D.E. Nuechterlein, Donald Robinson, John Hanessian, Jr., Robert Ellert, Bernard Gordon

Assistant Professors J.A. Morgan, Jr., Bernard Reich, C.F. Elliott, Don Allensworth, A.S. Banks (*Visiting*)

Assistant Professorial Lecturers George Chacko, C.A. Linden, T.M. Cooke
Lecturer Anita Dasbach

Bachelor of Arts with a major in Political Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Political Science 5-6 and Statistics 91.

* Content differs each time the course is offered; may be repeated for credit.

† Staff of Instruction for the academic year 1967-68.

Required: in addition to the general requirements, pages 74-78, thirty semester hours of Political Science courses including Political Science 105 and six semester hours from each of Groups A, B, C, and D, listed below. The six semester hours selected from Group A must include Political Science 117 or 118; the six semester hours from Group B must include Political Science 104 or 122 or 145; the six semester hours from Group C must include Political Science 111 or 112; the six semester hours from Group D must include Political Science 171 or 181 or 182.

Group A: Political Theory, History of Political Thought, and Methodology—Political Science 107, 117-18, 119-20, 141, 160, 198; *Group B:* American Government and Politics—Political Science 104, 121-22, 125, 126, 145, 146, 151, 167, 199; *Group C:* Comparative and Foreign Government and Politics—Political Science 101, 111, 112, 113, 115, 161, 162, 177, 178, 190, 191, 192, 193, 194, 196; *Group D:* International Politics, Law and Organization—Political Science 163, 171, 172, 181-82, 189, 197.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Political Science majors.

Bachelor of Arts with a major in Latin American Studies (Field-of-Study).—See Department of History.

Master of Arts in the field of Political Science.—Prerequisite: a Bachelor of Arts degree with a major in Political Science at this University (or equivalent major elsewhere) with a B average (or better) in the major.

Required: the general requirements, pages 83-87. The thirty hours of required work must be approved in advance by the adviser.

Master of Arts in the field of Latin American Studies.—See Department of History.

Doctor of Philosophy fields of study in Political Science: American Political Process and Behavior, Comparative Government and Politics, Constitutional Law and Judicial Politics, International Law, International Politics, International Organization, Political Theory (Normative and Empirical), State and Urban Politics, The Presidency and the Administrative Establishment, U.S. Foreign Policy; and Politics of Latin America, Soviet Union, Eastern Europe, Western Europe, Far East, South and Southeast Asia, Africa (south of Sahara), Middle East.—See pages 83-85, 87-88, for requirements for the degree.

Doctor of Philosophy fields of study in International Relations combine work in Economics, History, and Political Science.

Bachelor of Arts with a major in International Affairs.—See page 345.

Bachelor of Arts with a major in Public Affairs (Politics Option).—Prerequisite: the Public Affairs curriculum, page 74.

Required: the general requirements, pages 145-47, including Economics 102, 121, 161, 162; History 175-76; and Political Science 104, 111, 120, 121-22, 145, 146, 151.

Master of Arts in the field of International Affairs.—See page 346.

Master of Arts in the field of Public Affairs with a specialization in Domestic Politics.—See page 346.

Departmental prerequisite: Political Science 5-6 is prerequisite to all second-group courses in Political Science.

FIRST GROUP

5-6 Introduction to Political Science (3-3)

Staff

First half: structure, powers, and processes of the American political system—Congress, the President, and the Supreme Court; elections, political parties, and pressure groups; state and local government. *Second half:* nature and study of politics—theories, forms, and processes of political systems; international relations and political ideologies. (*First half:*

fall—day; spring—evening; summer 1968. *Second half:* fall—evening; spring—day; summer 1968.)

SECOND GROUP

101 Far East in the Modern World (3)

Michael

General character of Far Eastern societies and their response to the impact of America, Europe, and Russia; American policy in the Far East and the influence of world communism. (Fall—day; summer 1968)

104 State and Local Governments (3)

Allensworth

State and local government forms, policies, and practices. Theory of decentralization of governmental functions. Significance of intergovernmental relations. Comparative state and local political systems and their social and economic foundations. (Spring—day)

105 Scope and Methods of Political Science (3)

Wayne*

Development of the discipline to its present state; major approaches to the study of politics, including empirical methods of political research. (Fall and spring—day)

107 Problems in Modern Political Thought (3)

Elliott, Kraus

Development of democratic political institutions and analysis of main ideological changes during the 19th and 20th centuries. Emphasis on the rise of socialism and communism. (Spring—day)

111 Comparative Government and Politics (3)

Stout, Elliott, Gyorgy

Introduction to the government and politics of the principal constitutional democracies of Western Europe: Great Britain, France, and the Federal Republic of Germany; secondary reference to other West European systems and the communist government of East Germany. (Fall—day and evening; summer 1968)

†112 Comparative Government and Politics (3)

Stout, Elliott, Gyorgy

Introduction to the government and politics of the communist nations; emphasis on the Soviet Union and the countries of Eastern Europe. (Spring—evening)

113 Political Problems of the British Commonwealth (3)

Stout

From Colonial Empire to modern Commonwealth: questions of equal partnership; governments and policies in principal Commonwealth states; problems of new states in Asia and Africa. (Not offered 1968-69)

†115 Government and Politics in Eastern Europe (3)

Gyorgy

Study of the contemporary social and ethnic structures, governmental systems, and international position of the East European satellites. Emphasis on the post-World War II political evolution and present status of Soviet satellite nations. (Summer 1968—offered only in Communist Affairs program)

117-18 Political Theory: Nature and Growth of Western Political Thought (3-3)

Kraus

First half: Antiquity to the Middle Ages; forging Western political tradition. *Second half:* the Renaissance and Reformation to recent times.

* Appointment effective September 1968.

† Political Science 112, 115, and 161 are related in their subject matter, and credit for only one of the three may be applied toward a degree.

Theoretical foundations of the modern state: morals and politics, sovereignty, absolutism, resistance; liberalism, democracy, conservatism. (Academic year—day; summer 1968)

- 119-20 **American Political Thought (3-3)** Brewer, Morgan, Allensworth
(Formerly *Foundations of American Democracy*)

Introduction to political thought in the United States from colonial times to the present. (Academic year—day; summer 1968—Political Science 119)

- 121-22 **U.S. Constitutional Law and Politics (3-3)** Morgan
First half: separation of powers, federal-state relationships, economic regulation. Second half: political and civil rights. (Academic year—day; summer 1968—Political Science 122)

- 125 **Legislative Organizations (3)** Riddick
Congress: constitutional aspects, legal analysis of make-up, political organization. Political and parliamentary procedures used in the preparation and enactment of legislation. (1969-70 and alternate years)

- 126 **The American Presidency (3)** Wayne*
Role of the Presidency in public policy formulation and execution; emphasis on legislative-executive relations. (Fall—day)

- 141 **Development of Legal Institutions (3)** Brewer
Introduction to historical jurisprudence: primary attention to the origins of Roman Law of Continental Europe and of Anglo-Saxon Common Law. (Spring—day)

- 145 **Political Parties and Politics (3)** LeBlanc
Organization and operation of political parties in the United States: party system and structure, role of ideology, voting behavior, campaigns and elections, devices for organizing the government. (Fall—evening)

- 146 **Political Pressures and Public Reactions (3)**
Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy. (Spring—day)

- 150 **Internship in Politics (3)** Purcell, Robinson
Study of the political process in action by assignment to a congressional, state, or local office to pursue a specific research project. Limited to a small number of political science majors; priority given to seniors. Admission by selection of a departmental committee. (Fall and spring—as arranged)

- 151 **Public Administration (3)** Allensworth
Theory and practice of governmental administration and its relation to other public and private organizations and interests; introduction to organization theory and behavior. (Fall—day; summer 1968)

- 160 **Modern Communist Ideologies (3)** Gyorgy
Intensive study of 20th century communism; emphasis on its antecedents and possible evolution. Backgrounds, careers, and ideas of leading communist figures: Marx, Lenin, Stalin, Khrushchev, and Mao. (Summer 1968—offered only in Communist Affairs program)

* Appointment effective September 1968.

***161 Soviet Government and Politics (3)**

Elliott

Analysis of influences in the formation of the Soviet system under Lenin, Stalin, and Khrushchev; the Soviet Communist Party; government and mass organizations; selected aspects of economic, cultural, social, and foreign policy. (Not offered 1968-69)

162 Government and Politics of China (3)

Hinton

The Chinese Revolution: Chinese tradition, modern Chinese history, Marxism-Leninism, and Soviet influence; the rise of the Communist Party of China. Principal power structures: party, bureaucracy, armed forces, police. Major domestic and foreign objectives and policies. Students cannot receive credit for both Political Science 162 and 194. (Not offered 1968-69)

163 Soviet Foreign Policy (3)

Elliott

(Formerly History 137 History of Soviet Foreign Policy)

Relations with United States, Third World, China; international communism; disarmament policy; instruments of foreign policy; interrelationships of domestic and foreign policies; ideology and foreign policy. (Fall—day)

167 U.S. Foreign Policy (3)

Reich

Constitutional and political factors that determine the formulation, execution, and substance of U.S. foreign policy. (Fall—day)

171 International Politics (3)

Reich, Jordan

International actors, international and domestic environments of foreign policy, global and regional patterns, general characteristics of foreign policy. (Fall—day and evening; summer 1968)

172 International Organization (3)

Jordan

Development and operations of the United Nations, regional organizations, and functional international organizations. (Spring—day and evening; summer 1968)

177 Governments and Politics in Latin America (3)

Storrs†

(Formerly Latin America Politics and Government)

Domestic and foreign policy processes and institutions in Latin America; types of government; emphasis on Argentina, Brazil, Chile, Mexico, and Cuba. (Fall—day)

178 Latin America: Political Patterns and International Relations (3)

Storrs†

(Formerly International Politics in the Western Hemisphere)

Patterns of political development, role of interest and pressure groups, inter-American diplomacy, United States-Latin American relations. (Spring—day)

181-82 Public International Law and Organization (3-3)

Brewer

Survey of the public law of nations. *First half*: emphasis on the law of peace. *Second half*: attention to neutrality and the so-called law of war. (Academic year—day and evening; summer 1968)

* Political Science 112, 115, and 161 are related in their subject matter, and credit for only one of the three may be applied toward a degree.
† Appointment effective September 1968.

- 189 African International Politics (3)** Nimer
Analysis of interstate relations in Africa and of selected aspects of African relations with the outside world. (Spring—day)
- 190 Politics of Middle and Southern Africa (3)** Nimer
Comparative analysis of the political systems of selected countries of non-Mediterranean Africa. (Fall—day)
- 191 Governments and Politics of the Middle East (3)** Reich
Domestic and international politics of the eastern Arab states, Turkey, Iran, and Israel. (Fall—day)
- 192 Governments and Politics of North Africa (3)** Reich
Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, Sudan; their relations with states of the Middle East. (Spring—evening)
- 193 Governments and Politics of South and Southeast Asia (3)** Purcell, Hinton
Domestic and international politics of the major states in the area, particular reference to India. (Fall—evening)
- 194 Governments of China and Japan (3)** Michael
Institutions and processes of government of contemporary China and Japan, with some historical background. Attention to ideological forces. Students cannot receive credit for both Political Science 194 and 162. (Spring—evening; summer 1968)
- 196 Problems of Modern Political Leadership (3)**
Lectures and discussions on problems of political leadership in developing states. (Not offered 1968-69)
- 197 Proseminar: International Affairs (3)** Purcell
Diplomatic, economic, psychological, military problems of U.S. foreign policy. Readings, term papers, discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—day; spring—evening; summer 1968)
- 198 Contemporary Trends in Political Science (3)**
Lectures and discussions emphasizing recent developments of research and theory applicable to developing states. (Not offered 1968-69)
- 199 American Government and Politics (3)** LeBlanc
Proseminar: reading and research as a basis for analyzing significant problems. Open to seniors in Public Affairs and Political Science curricula. (Spring—day)

THIRD GROUP

Graduate reading courses and seminars may vary in theme from year to year and may be repeated for credit with the approval of the student's adviser and the consent of the instructor.

- 201 **Seminar: Methods of Political Research (3)** Wayne*
(Formerly Quantitative Approaches to Political Analysis)
 Examination and application of various empirically oriented methods of political analysis. (Fall—evening)
- 203-4 **State and Local Governments (3-3)** Allensworth
First half: readings and group discussions on the process of politics at state and local levels. *Second half:* advanced research in selected topics of state and local politics. (Academic year—evening)
- 209 **Seminar: American National Executive (3)** Wayne*
(Formerly Seminar: Federal Government of the United States)
 Reading and research on the institutionalized features of the Presidency; emphasis on the politics of the Executive Branch. American (Spring—evening)
- 210 **Seminar: the American Congress (3)**
(Formerly Seminar: Federal Government of the United States)
 Reading and research on the Congress of the United States. (Not offered 1968-69) (Not of-)
- 211 **Readings in Comparative Government and Politics (3)** Stout
 Methodological questions; comparative political processes and systems; some attention to legislatures, executives, parties, public services, the role of the military. (Fall—day)
- 212 **Seminar: Comparative Government and Politics (3)** Stout
 Selected topics in comparative political institutions and politics. Each semester is devoted to a selected country or significant institutional or policy problem. Attention is directed to questions of method. (Spring—day)
- 215-16 **Seminar: the Socialist Camp in World Politics I-II (3-3)** London
(Formerly Seminar: Sino-Soviet Blocs in World Affairs I-II)
First half: significant issues of communism, particularly in the Soviet Union and Red China; concept and structure of "world socialist system"; intra-Bloc relations with emphasis on the Sino-Soviet dispute. Prerequisite: 3 semester hours in modern political theory. *Second half:* political ramifications of the communist movement and its relations with the non-communist world. Prerequisite: 3 semester hours in international relations or comparative government. (Academic year—day)
- 217 **Readings in Political Theory (3)** Kraus
 Readings and group discussions, principally on modern political and constitutional theory since the 17th and 18th centuries. (Fall—evening)
- 218 **Seminar: Topics in Political Theory (3)** Kraus
 Research and discussion on problems of modern political and constitutional theory, theoretical aspects of representative government, democracy, socialism, totalitarianism. (Spring—evening)

* Appointment effective September 1968.

- 221-22 The United States Constitution and the Judicial Function (3-3)** Morgan
First half: readings and group discussions on constitutional law and politics. *Second half:* seminar on selected topics of constitutional law and judicial behavior. (Academic year—evening)
- 224 Readings in Socialism and Communism (3)** Kraus
 Readings of primary and secondary works ranging from pre-Marxian and Marxian socialism to contemporary Marxism-Leninism. Prerequisite: 3 semester hours in modern political theory. (Fall—day)
- 225 Seminar: Marxism-Leninism (3)** Kraus
 Crucial theoretical problems, such as the nature of revolution, dictatorship of the proletariat, transition to communism, imperialism, and national liberation in Marxian and contemporary communist doctrine. Prerequisite: Political Science 224 or permission of instructor. (Spring—evening)
- 227 Seminar: Government and Politics of Eastern Europe (3)** Gyorgy
 Comparative study of principal political, social, economic institutions; Soviet stake; patterns of Soviet domination; efforts toward economic and political integration; impact of the Sino-Soviet dispute; U.S. policy toward satellite nations. Workshop: Eastern Europe in world affairs. (Spring—evening)
- 229 Readings in Soviet Government and Politics (3)** Elliott
(Formerly Policies Toward Arts and Humanities in Communist Society)
 Readings in contemporary Soviet domestic government and politics. Prerequisite: 3 semester hours selected from History 146, Political Science 112, or equivalent. (Fall—evening)
- 230 Seminar: International Communism (3)** Metzl
Fall semester: emphasis on operational techniques. *Spring semester:* case studies. Students may receive credit for the fall semester and also the spring semester, but neither semester may be repeated for credit. (Fall and spring—evening)
- 231 Seminar: Sino-Soviet Relations (3)** Michael
 Background, development, and status of conflict within the communist movement; emphasis on the role of Chinese communists. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or equivalent. A reading knowledge of Russian or Chinese required. (Spring—day)
- 232 Seminar: International Communications (3)** White, Dasbach
 East-West perspectives. History and theory, image factors, national patterns, communication in the communist orbit and between it and the free world. (Fall—day)
- 233 Seminar: Soviet Government and Politics (3)** Elliott
 Research seminar in selected problems of Soviet domestic government and politics. Emphasis: since Stalin. Prerequisite: Political Science 229 or consent of instructor. (Spring—evening)
- 234 Soviet Political Process (3)** Ploss
 Influence of revolutionary ideas, traditions, and accidental events on Soviet organization, and on administration of Soviet social, economic, nationality,

and military policies; application of these policies by leaders to maintain power. (Fall—day)

- 235 Metropolitan Government and Politics (3)** Allensworth
Urban political processes and change, emphasis on land use and planning; social, economic, political aspects of metropolitan differentiation and integration. (Fall—evening)

- *237 Chinese Law (3)** Hsia
Emphasis on the legal system of Communist China; analysis of the constitutional law of the People's Republic of China including general principles, state structure, and rights and duties of citizens; a brief survey of the administration of justice—courts, procuratorates, and lawyers; marriage law; land law; counterrevolutionary act and other criminal statutes; principles of civil law; communist Chinese concept of international law. (Spring—evening)

- †238 Soviet Law (3)** Ramundo
Concept of "socialist legality"; legal relationship of individual to state and other participants in Soviet society; role of Party in Soviet legal system; Soviet philosophy of law; state (constitutional) law; Soviet federalism; governmental apparatus, rights and obligations of citizenship; criminal law; property law; labor law; selected topics in civil law and procedure; international law. (Fall—as arranged)

- 245-46 The American Political Process (3-3)** LeBlanc
First half: readings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups.
Second half: seminar on selected topics of American politics. (Academic year—evening)

- 253 Seminar: Chinese Government and Politics (3)** Michael
Political institutions and concepts in late imperial times, during the revolution, under national government, and under communism. Emphasis on the communist period. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or equivalent. A reading knowledge of Chinese required. (Fall—day)

- 254 Colloquium: Modern China (3)** Michael
Interuniversity research colloquium of faculty members of the Institute for Sino-Soviet Studies and other area universities from different disciplines concerned with the study of modern China. Critical discussions of research plans and studies in progress in weekly sessions. Advanced graduate students admitted with permission of faculty group. (Fall and spring—day)

- 255 Colloquium: Russia and Eastern Europe (3)** London, Gyorgy
Interuniversity research colloquium of faculty members of the Institute for Sino-Soviet Studies and other area universities from different disciplines concerned with the study of Russia and Eastern Europe. Critical discussions of research plans and studies in progress in weekly sessions. Ad-

* Same as Law 547 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

† Same as Law 546 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

vanced graduate students admitted with permission of faculty group.
(Fall and spring—day)

257 Seminar: Communism in Developing Countries (3)

Examination of international communist policy for, and communist parties in, developing countries. Case studies of Asia, Africa, and Latin America. Basic communist concepts of imperialism and nationalism; development and current application of Soviet and Chinese variants of strategy and tactics for "national liberation." (Not offered 1968-69)

258 Seminar: Communist Parties in the Noncommunist World (3)

Movements and ideological variations of communist parties of France, Italy, the Scandinavian countries, and other Central and West European nations. Case studies on communist problems of Middle East and North African nations. (Not offered 1968-69)

265-66 Chinese Communist Policy Processes (3-3)

Hinton

Determinants of policy, view of the world, instrumentalities and locus power, interrelationship between domestic and foreign policy, formulation and implementation of policy. **Prerequisite:** 3 semester hours selected from Political Science 231, 253, 295, 296. *First half:* readings. *Second half:* research seminar. (Academic year—evening)

267 Seminar: U.S. Foreign Policy (3)

Purcell

Research and selected reading as the basis for an analysis of the foreign policy of the United States, with particular reference to the decision-making process and the execution of policy. (Fall—evening)

268 Seminar: Comparative Foreign Policies (3)

Stout

Research and selected reading as the basis for an analysis of the foreign policies of major powers, with particular reference to the decision-making process and the execution of policy. (Spring—evening)

269 Seminar: Soviet Foreign Policy (3)

Elliott

External policies and relations of the USSR; world objectives of Soviet leaders; relations with other communist states, Western powers, and other countries; international propaganda, disarmament policy, foreign economic relations. **Prerequisite:** 3 semester hours selected from History 137, 145-46, or equivalent. (Spring—evening)

270 Political and Social Institutions of Eastern Europe (3)

Gyorgy

Major political and social factors which have shaped the inter-war, World War II, and post-war evolution of Eastern Europe. Emphasis on sociological and anthropological forces which have contributed to "Balkanization" of this area in the last fifty years. Each time the course is offered the concentration will be on one or two selected countries. (Fall—day)

271-72 Problems in International Organizations (3-3)

Jordan

First half: analysis of the political dimension of international organizations; special reference to the United Nations. *Second half:* examination of the operational and administrative aspects of international organizations; special reference to regional and functional bodies. (Academic year—evening)

273 Public Opinion and Foreign Policy (3)

Development, organization, and operation of international information programs by major world powers. U.S. public opinion influencing foreign policy formation and conduct. (Spring—evening)

275-76 International Politics (3-3)

Nimer

(Formerly *Problems of International Politics*)

First half: reading and discussion of recent and older works of theoretical significance. Second half: individual research on and class discussion of selected international political topics. Attention in each half to both factual and value problems. (Academic year—evening)

277-78 Seminar: Latin American Politics (3-3)

Storrs*

(Formerly *Political Science 277 Seminar: Latin American Government, and Political Science 278 Seminar: Latin American Political Philosophy*)

First half: readings and discussions on Latin American political processes and institutions. Second half: individual research and class discussion on selected topics of Latin American politics. (Academic year—evening)

281-82 Seminar: Public International Law (3-3)

Brewer

Research in the public law of nations, with special attention to problems of pacific settlement, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day)

†283 Topics in International Law (3)**†285 Diplomacy since World War II (3)****288 Seminar: Soviet Military Policy and Strategy (3)**

Gallagher

Soviet developments in military policy and strategy with attention to intra-Bloc military cooperation, political context of Soviet military policy, significant changes in recent Soviet military thought. (Fall—evening)

290 Topics in African Politics (3)

Nimer

(Formerly *Reading Course in African International Politics*)

Reading, research, and discussion of selected aspects of African domestic and international politics. (Spring—evening)

291 Governments and Politics of the Middle East (3)

Reich

Reading and research in selected problems in the government and politics and international relations of the Middle East. (Fall—evening)

292 Governments and Politics of North Africa (3)

Reich

Reading and research in selected problems in the government and politics and international relations of North Africa. (Spring—evening)

293 Seminar: Governments and Politics of South and Southeast Asia (3)

Purcell

Research and selected reading as basis for analysis of structure, problems, and policies of the governments of selected countries in the area, with particular reference to India. (Spring—evening)

* Appointment effective September 1968.

† Offered in War College programs only.

294 Seminar: Governments and Politics of Japan and Korea (3)

Readings, research, and discussion on the contemporary political problems and relevant historical background of Japan, North and South Korea.
(Not offered 1968-69)

295 Seminar: Chinese Communist Foreign Policy (3)

Hinton

Objectives: formulation and implementation of foreign policy; Communist China as Asian state, revolutionary influence, would-be power. Relevant background, such as Political Science 253, desirable. (Spring—day)

296 Seminar: the Communist Role in Far Eastern International Politics (3)

Hinton

Evolution of communist strategy for Asia, armed struggle in South and Southeast Asia, wooing of national bourgeoisie, development of Asian communist states, local communist parties since World War II, Sino-Soviet rivalry. (Fall—evening)

298 Southeast Asia in World Politics (3)

Gordon

Southeast Asia in great-power perspective. Overlapping and conflicting interests, foreign policies, and military requirements of the United States, Japan, China, and the USSR. Balance-of-power concept and development of Asian subsystem. (Spring—evening)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

FOURTH GROUP

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Psychology*

Professors Thelma Hunt, E.L. Phillips, J.N. Mosél, B.I. Levy (*Chairman*), W.E. Caldwell, R.D. Walk, R.K. White, Gardner Murphy (*Visiting*)
Professorial Lecturers Margaret Ives, W.A. McClelland
Associate Professors C.E. Tuthill, Eva Johnson, Virginia Kirkbride, Jacqueline Goodnow, M.L. Meltzer
Associate Professorial Lecturers R.K. Kahn, J.B. Margolin
Assistant Professors R.R. Bonato (*Research*), R.H. Tanck (*Research*), Lois Hammer, D.E. Silber, Charles Rice, W.B. Rucker, Eugene Abravanel
Lecturer S.L. Cohen

* Staff of instruction for the academic year 1967-68.

CLINICAL TRAINING STAFF

*Clinical Professor I.W. Scherer**Associate Clinical Professors Katharine Beardsley, Elizabeth Broomhead, A.M. Rochlin**Assistant Clinical Professors Alice Adams, Andrea Doman, J.M. Smothers**Bachelor of Arts with a major in Psychology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, and Psychology 1 and 5, or 1 and 6, or 5-6.*

The general requirements for the degree are stated on pages 74-78. The sixty required semester hours, in addition to those taken as prerequisites, must include twenty-four hours in second-group Psychology courses, including Psychology 196 and one course from each of the following groups—Group A: Psychology 118, 121, 161; Group B: Psychology 115, 151, 156; Group C: Psychology 112, 129, 131, 144. Statistics 53 or 104, or an appropriate course in mathematics, is required.

Master of Arts in the field of Psychology.—Prerequisite: the degree of Bachelor of Arts with a major in Psychology at this University, or equivalent.

Required: the general requirements, pages 83-87. Of the twenty-four required semester hours (exclusive of the thesis), a minimum of eighteen must be in third-group Psychology courses including Psychology 202 and either 203 or 204; six may be in related fields approved by the Department.

Master's programs are available in the following fields of concentration: (1) tests and measurements, (2) psychopathology (abnormal), (3) social, (4) personnel, (5) experimental, (6) personality, (7) experimental comparative, and (8) developmental. For detailed requirements consult the Chairman of the Department.

*Master of Arts in the field of Linguistics.—See pages 287-89 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.**Doctor of Philosophy fields of study in Psychology: Psychology (Clinical, Comparative, Developmental, Experimental, Social), and Psychometrics.—See pages 83-85, 87-88, for requirements for the degree.**Master of Arts in Government in the field of Personnel Administration.—See pages 127-31, 136.**Master of Business Administration in the field of Personnel Administration.—See pages 127-31, 133-34.**Master of Public Administration in the field of Personnel Administration.—See pages 127-31, 134, 135.**Master of Arts in Education in the fields of Employee Training, Guidance, and Student Personnel Work in Higher Education.—Prerequisite: a Bachelor's degree from an accredited institution and two years of successful teaching experience. See pages 107-10.*

Students electing Psychology courses in the freshman year should begin with Psychology 1; with permission of instructor students may elect Psychology 5-6 in the freshman year.

Departmental prerequisite: Psychology 1 or 5-6 is prerequisite to all other courses in Psychology. Six semester hours in first-group Psychology courses are prerequisite to all second-group courses in Psychology.

FIRST GROUP

1 General Psychology (3)

Fundamental principles underlying human behavior.
—day and evening; summer 1968)

Staff
(Fall and spring

5-6 Principles and Methods of Psychology (3-3) Walk, Hammer
Lecture (2 hours), laboratory (2 hours). An experimental approach to understanding behavior; individual and class experiments performed. *First half*: awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. *Second half*: topics of motivation, learning, memory, and problem solving. (*First half*: fall—day and evening. *Second half*: spring—day.)

8 Psychology of Motivation and Personality (3) Tuthill, Silber, Rice
Introduction to the psychology of personality. Principles of motivation, personality development, social and cultural factors, and assessment and description of personality emphasized. (Fall—day and evening; spring—day; summer 1968)

22 Introduction to Educational Psychology (3) Kirkbride
Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall and spring—day; summer 1968)

29 Psychology of Childhood (3) Johnson
Genetic approach to study of the child. Emphasis on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1968)

SECOND GROUP

101 Abnormal Psychology (3) Hunt and Staff
Causes, diagnosis, treatment, and prevention of various types of maladjustments and mental disorders. Prerequisite: 6 semester hours in psychology, or 3 in psychology and 6 in a biological science. (Fall and spring—day and evening; summer 1968)

110 Cognitive and Perceptual Development (3) Abravanel
Concepts and research in the area of developmental psychology; emphasis on the growth and development of perception, cognition, and language. (Spring—day)

112 Psychology of Adolescence (3) Johnson
Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems. (Fall—day)

115 Psychology of Language and Communication (3) Mosél
Introduction to psycholinguistics and verbal behavior. Information theory, measurement of meaning, cultural and linguistic structures in the perception and learning of language. (Fall—day; summer 1968)

118 Physiological Psychology (3) Rucker
Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system, with emphasis on the relations between physiological functioning and behavior. (Fall and spring—day; summer 1968)

121 Psychology of Learning (3) Hammer, Rucker
Current learning theories and issues. (Fall—day)

- 129 Motivational Factors in Personality (3)** Kirkbride
Survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—day)
- 131 Psychological Tests (3)** Hunt
Survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1968)
- 144 Personnel and Industrial Psychology (3)** Mosel
Psychological concepts and methods applied to problems of personnel management, human engineering, employee motivation, and productivity. (Fall—evening; spring—day)
- 145 Psychology of Management (3)** Cohen
Primarily for students in the schools of Engineering and Applied Science and Government and Business Administration. Introduction to principles of industrial organizations and personnel selection. (Fall and spring—evening; summer 1968)
- 151 Social Psychology (3)** Tuthill, White
Social foundations of attitudes and behavior: cognition, motivation, role-behavior, communication, small-group processes, racial attitudes, nationalism, and war. (Fall—evening; spring—day; summer 1968)
- 156 Psychology of Attitudes and Public Opinion (3)** Tuthill
Psychology of opinion formation, measurement of opinion, social determinants of attitudes, psychological processes in propaganda, bases of receptivity of propaganda, psychological warfare. (Spring—evening; summer 1968)
- 161 Comparative Psychology (3)** Caldwell
Lectures and demonstrations on animal psychology. Psychological processes in infrahuman organisms, evolution of behavior, the place of animal experimentation, and research in psychology. (Spring—day)
- 191 Independent Research in Psychology (3)** Staff
Opportunity for work on individual library or experimental projects. Open to qualified students by permission; arrangements must be made with the sponsoring faculty member prior to registration. May be repeated once for credit. (Fall and spring—as arranged; summer 1968)
- 196 History and Systems of Psychology (3)** Caldwell and Staff
Senior capstone course which includes a survey and integration of the major viewpoints and concepts of psychology. Required of psychology majors. (Fall—day; spring—evening; summer 1968)
- 198 Current Research Issues in Psychology (3)** Staff
Conducted as a seminar. Recent experiments in psychology, including those performed by members of the class; emphasis on student participation. Limited to senior psychology majors. (Spring—day)

THIRD GROUP

Third-group Psychology courses are open only to graduate students, except by special permission of instructor and Chairman of the Department.

- 202 **Psychological Research Methods and Procedures (3)** Walk
Required in all graduate programs. Prerequisite: a laboratory course in experimental psychology and an elementary course in statistics. (Spring—day)
- 203-4 **Experimental Foundations of Psychology (3-3)** Hammer
Required of all Ph.D. candidates during first year of graduate study. *First half*: problems in physiologic processes, psychophysics, sensation, and perception. *Second half*: motivation, learning, cognitive processes. (Academic year—day)
- 209 **Seminar: Psychology of Motivation (3)** Caldwell
Various theoretical approaches to the psychology of motivation; systematic concepts and experimental findings deriving from each approach. (1969-70 and alternate years)
- 211 **Assessment of Cognitive Functioning (3)** Levy
Concept of intelligence and its assessment through the use of a battery of tests and clinical procedures. Prerequisite: elementary course in tests and measurements. Material fee, \$7. (Fall and spring—day)
- 212 **Personality Assessment by Projective Techniques (3)** Silber, Meltzer, Levy
Emphasis on administration and scoring of the Rorschach Test. Prerequisite: Psychology 211. (Spring—evening; summer 1968)
- 215 **Personality Assessment by Multiple Procedures (3)** Silber, Meltzer
Consideration and use of a wide range of procedures in assessment of personality. Prerequisite: Psychology 211 and 212. (Fall—day; summer 1968)
- 217 **Seminar: Developmental Psychology (3)** Goodnow
Emphasis on perceptual and cognitive development. Covers major theoretical approaches and illustrates these by reference to current research problems. (Spring—day; summer 1968)
- 218 **Seminar: Systems of Psychotherapy (3)** Silber
Introduction to theory and technique of psychotherapeutic approaches: psychoanalytic, ego-centered, nondirective, transactional, and others. Original sources surveyed. (Spring—evening)
- *219 **Seminar: Topics in Advanced Clinical Psychology (3)** Margolin, Ives
Selected areas of research and theory in the general field of clinical psychology. Community psychology and professional problems alternate. (Fall and spring—evening; summer 1968)
- 220 **Seminar: Abnormal Psychology (3)** Hunt
Study of selected problems in the field of abnormal psychology. (Fall—evening; spring—day; summer 1968)
- 223 **Seminar: Learning (3)** Hammer
Selected topics in the psychology of learning. (Spring—evening)
- 226 **Seminar: Clinical Psychology of Childhood and Adolescence (3)** Johnson
Survey of behavior and personality disorders. (Spring—evening)

- 227-28 **Seminar: Variations in Psychotherapeutic Approach (3-3)** Kahn
Patient needs and demands on the therapist. Case participation heavily relied upon. Open to qualified students in psychology and related fields, with permission of instructor. May be repeated once for credit. (Academic year—day)
- 229 **Seminar: Principles of Behavior Change (3)** Phillips
Stimulus-organism-response variables and their interactions, with emphasis on learning theory as applied to clinical problems. (Spring—day)
- 231 **Development of Psychometric Instruments (3)** Mosel
Quantitative techniques and principles used in construction, standardization, and evaluation of personality and ability measures for research and practice; quantification of human judgment for measurement purposes. Prerequisite: course in tests and measurements and an elementary course in statistics. (Fall—evening)
- 234 **Seminar: Theory of Psychological Measurement (3)** Mosel
Development of classical axiomatic-deductive theory underlying major notions in the construction and evaluation of psychological tests. (1968-69 and alternate years: spring—evening)
- 245 **Seminar: Organizational Behavior (3)** Mosel
Analysis of organizational behavior; emphasis on motivation and productivity. Recent research on employee attitudes, primary group, effects of various patterns of supervisory leadership, role of formal and informal organization, job design. (Spring—evening)
- 246 **Seminar: Personnel Measurement Techniques (3)** Mosel
Detailed consideration of techniques of personnel selection and performance evaluation. Employment tests, personal data, assessment interviews, and performance ratings. (Summer 1968 and alternate summers)
- *247 **Seminar: Topics in Psychotechnology (3)**
Research and theory in the general field of human performance in work organizations. Open to qualified students in psychology, engineering, and the social sciences with permission of instructor. (1969-70 and alternate years)
- 251 **Seminar: Advanced Social Psychology (3)** Tuthill
Current research and theory in social psychology: group dynamics, ego-involvements, action research, and social interaction theory. (Fall—day)
- 252 **Research Methods in Social Psychology (3)** White, Tuthill
May be repeated once for credit. 1968-69 and alternate years: attitude-scale construction, sampling, etc. 1969-70 and alternate years: opinion-survey techniques; interviewing, content-analysis, etc. (Spring—evening)
- 254 **Seminar: Experimental Social Psychology (3)** Tuthill
Experimental study of small groups, autocratic and democratic group climates, interaction process analysis, Lewin's field-theoretical approach to individual and group processes. (1969-70 and alternate years)

* Independent topics each semester; may be repeated for credit.

- 256 Seminar: Psychology of Group Conflict (3)** White
An attempt to integrate evidence from animal behavior, child behavior, anthropology, psychiatry, and recent history, including World Wars I and II and the present East-West conflict. (Spring—day; summer 1968)
- 259 Seminar: Social Psychology of Communism (3)** White
Public and governmental opinion in communist countries, authoritarian thinking, communist propaganda, problems of Western communication with communist countries. (Fall—evening)
- *261 Seminar: International Communication (3)** Mosél
Communicating information and effecting attitude change across cultures by mass media. Emphasis on psychocultural factors and the functions of mass communication in the development of transitional societies. (Not offered 1968–69)
- †269 Seminar: Topics in Social Psychology (3)**
Selected areas of research and theory in social psychology. (1968–69 and alternate years: spring—evening)
- 272 Seminar: Theories of Personality (3)** Caldwell
Emphasis on theoretical problems and methodology in the field of personality study. (Fall—evening; spring—day; summer 1968)
- 283–84 Practicum in Clinical Psychology (3–3)** Silber
Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of instructor. (Academic year—as arranged; summer 1968)
- 285–86 Teaching Practicum in Psychology (1–1)** Staff
Supervised training in aspects of college teaching, including tutorial and small group instruction, lecturing, and examination methods; readings; seminar discussions. Admission by permission of instructor. May be repeated with progression from elementary to advanced courses. (Academic year—as arranged)
- †289 Seminar: Current Topics in Experimental Psychology (3)** Staff
Review and discussion of contemporary research and theory in a specialized field of psychological study, by leaders in the field. (Fall and spring—evening; summer 1968)
- 292 Seminar: Perception (3)** Walk
Study of current research and theory in the experimental psychology of perception. (1968–69 and alternate years: fall—day)
- 293 Seminar: Psychology of Thinking (3)** Rice
Thinking and problem solving. Specific topics include: concept formation, nature of insight, and other cognitive processes. (1969–70 and alternate years)
- 295 Independent Research in Psychology (arr.)** Staff
Individual library or experimental research under supervision of staff member. Arrangements must be made with sponsoring faculty member prior

* Primarily for students in the School of Government and Business Administration and the School of Public and International Affairs.

† Independent topics each semester; may be repeated for credit.

to registration. May be repeated once for credit. (Fall and spring—
as arranged; summer 1968)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

FOURTH GROUP

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general exam-
ination. May be repeated for credit. (Fall and spring—as arranged;
summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit.
(Fall and spring—as arranged; summer 1968)

Public Administration*

Professors D.S. Brown, Waldo Sommers, K.E. Stromsem (*Chairman*), S.M.
Rosen (*Visiting*), Edwin Timbers

Adjunct Professor J.L. Intermaggio

Professorial Lecturers W.G. Torpey, C.E. Goode, Ben Posner, C.L. Berg, G.C.
Jacobus

Associate Professor D.R. Cloutier

Associate Professorial Lecturers Ross Pollock, Norman Beckman, R.R.

Temple, L.B. Pouliot, H.A. Green

Adjunct Assistant Professor A.G. Winslow

Assistant Professorial Lecturers W.E. McConville, D.G. Phillips

Master of Arts in Government in the fields of Personnel Administration, Public
Administration, or Urban and Regional Planning.—See pages 127-31, 136-37.

Master of Public Administration in the fields of Personnel Administration, Public
Administration, or Urban and Regional Planning.—See pages 127-31, 134-35.

Master of Urban and Regional Planning.—See pages 127-31, 135.

Doctor of Public Administration.—See pages 138-39.

PUBLIC ADMINISTRATION

THIRD GROUP

213 Administration in Government (3)

Brown, Cloutier

Critical analysis of federal administrative organizations as an integral part
of the political system. Roles of Congress, the Presidency, the Courts,
interest groups, political parties, and the public in the administrative proc-
ess; special attention to centripetal and centrifugal forces. (Fall and
spring—day and evening; summer 1968)

* Staff of Instruction for the academic year 1967-68.

- 215 Comparative Administrative Systems (3)** Rosen
Examination and analysis of the administrative systems of selected foreign governments; attention to practices applicable to administration in the United States. (Fall—evening)
- 216 Administration of International and Supranational Activities (3)** Staff
Analysis of the evolution and application of the administrative process in selected international and supranational activities. Problems of organization and management in multi-national supported and staffed activities. (Spring—as arranged)
- 217 Seminar: Developmental Administration (3)** Brown
Examination of theories of transfer of administrative capabilities from one country to another, factors relating to indigenous cultures, strategies of aid, examination of specific national and supranational programs. (Spring—evening)
- 221 Management in the Executive Branch (3)** Rosen
Analysis of application of management theory and practice in the Executive Branch of the Federal Government; emphasis on staff responsibilities and relationships and internal organization and control. (Fall—day and evening; spring—evening; summer 1968)
- 223 Behavioral Factors in Large Organizations (3)** Brown
Analysis of the nature and characteristics of bureaucracy: dysfunctionism; approaches to policy guidance and leadership, particularly in large public organizations; influence and control systems. (Fall and spring—evening)
- 231 Public Personnel Administration (3)** Sommers
Survey of basic principles and functions of personnel administration in the public service. Roles of personnel management, recruitment, placement, wage and salary administration, training, retirement, and other personnel functions. (Fall—evening; summer 1968)
- 232 Problems in Public Personnel Management (3)** Sommers
Analysis and evaluation of major personnel management problems in government; employee-management relations; interagency and intergovernmental relationships. Impact of automation. Evaluation of personnel systems. (Spring—evening)
- 233 Seminar: Manpower Development and Utilization (3)** Staff
Analysis of manpower resources. Research projects and case studies in ways and means of increasing employee potential; use of training programs, executive development, incentive systems. (Spring—evening)
- 235 Technological Change and Manpower (3)** Staff
Research, discussion, and readings dealing with manpower problems arising from automation and other technological changes. Evaluation of these developments in government and business; their implications for productivity, employment, training and education, and personnel and industrial relations. Analysis of economic, political, and social factors influencing public and private industry manpower policies. (Fall—evening)

- *243 Local Government Law (3)** Pock
Decision-making processes in metropolitan and local communities; types and objectives of city, county, and special function local government units; intergovernmental units; intergovernmental relations; original organization and changes; local lawmaking; community planning and development. (Fall—day and evening)
- 246 Urban Dynamics (3)** Beckman
Forces that lie behind economic decisions which in turn determine the development of cities. (Fall—evening)
- 248 Financing Metropolitan Services (3)** Cloutier
Analysis of the structure and administration of public finance of local governments. (Spring—evening)
- 249 Administration in Metropolitan Area Governments I (3)** Cloutier
Examination of public administration at the local level. Developments and trends growing out of the changing urban pattern. (Fall—evening)
- 250 Administration in Metropolitan Area Governments II (3)** Cloutier
Examination of newly emerging political and social groups in metropolitan areas and their relations to governmental administration. Examination of federal programs in metropolitan areas. Prerequisite: Public Administration 249 or permission of instructor. (Spring—evening)
- †251 Governmental Budgeting (3)** Stromsem, Posner
Survey of the basic concepts, principles, and practices in governmental budgeting; interrelationship of planning, programming, and budgeting; their role in the management process. (Fall and spring—evening; summer 1968)
- 252 Problems in Planning, Programming, and Budgeting (3)** Staff
Intensive analysis of developments in federal planning, programming, and budgeting; application of new tools in the decision-making process; evaluation of the systems. (Fall and spring—evening)
- 254 Seminar: Financial Management in the Federal Service (3)** Stromsem
Functions and interrelationships of central federal financial management agencies, their policy, economic and managerial roles, controllership functions, and standards and practices in financial management. (Spring—evening)
- 260 Seminar: Policy Formulation and Administration (3)** Rosen
Analysis in depth of factors and processes involved in policy development, with particular attention to selected areas of national policy; development of agency goals and objectives. (Fall—evening)
- 261 The Public and the Administrator (3)** Staff
Nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs. (Fall—evening)

* Same as Law 349 (2). Students electing Public Administration 243 make special arrangements with instructor for supplementary assignments equivalent to one additional semester hour. Dr. Pock is Associate Professor of Law in the National Law Center.

† Special sections of this course offered in the Navy Graduate Financial Management Program.

- 262 Seminar: Science, Technology, and Public Policy (3)** Rosen
The impact of science and technology upon public administration in terms of both administrative practice and national policies. (Spring—evening)
- 263 Seminar: Regulation of Transportation I (3)** Hill
History of development of modes of transportation in the United States; economic problems and growth of regulatory legislation and philosophy; the Congressional power to regulate; the scope of federal regulation; agency administration, enforcement, and procedure; introduction to principles of certification and rate making. (Same as Law 407 (2)).* (Fall—evening)
- 264 Seminar: Regulation of Transportation II (3)** Hill
Principles of certification of rail, motor, water, and air carriers; elements and principles of rate making; comparison of problems, procedures, and regulatory philosophies of the various regulatory agencies. (Same as Law 408 (2)).* (Spring—evening)
- 271 Readings and Research in Public Administration (3)** Stromsem
Advanced directed readings and research in specific areas of public administration. (Fall and spring—as arranged)
- 273 Colloquium: Public Administration and American Political and Social Institutions (3)** Cloutier
Supervised study in depth of contemporary literature in selected fields, and of research methodology in public administration. Primarily for doctoral candidates. (Fall—as arranged)
- 298 Case Studies in Public Administration (3)** Rosen
Analysis and discussion of problems in public management by use of the case method. (Spring—evening)
- 299 Thesis Seminar (3)** Sommers
Examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1968)
- 300 Thesis Research (3)** Staff
(Fall and spring—as arranged; summer 1968)

FOURTH GROUP

- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Public Administration general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 Dissertation Research (arr.)** Staff
Limited to Doctor of Public Administration candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

* Students registering for Public Administration 263 or 264 make special arrangements with instructor for supplementary assignments equivalent to one additional semester hour. Mr. Hill is Associate Professorial Lecturer in Law in the National Law Center.

URBAN AND REGIONAL PLANNING

THIRD GROUP

- 201 Introductory Planning Problems (3)** Winslow
Planning design laboratory; introductory exercises employing the analytic and substantive knowledge imparted in related courses. Examination of the anatomy of neighborhoods and communities, analysis of findings, formulation of proposals. (Fall and spring—evening)
- *203 Fundamentals of Urban Design (3)** Winslow
Principles of urban design and arrangement, traffic flow, use of space to achieve urban efficiency with maximum visual amenity. (Fall—evening)
- 205 Seminar: Urban Housing (3)** Intermaggio
Consideration of housing problems growing out of increasing urban population. Social, economic, and design aspects of today's housing; foreign and domestic housing programs and policies. (Fall—evening)
- 207 Land Use Planning (3)** Nutting
Selected problems in urban redevelopment and housing; emphasis on programs under current federal and state legislation. (Same as Law 571 (2)).† (Not offered 1968-69)
- *215 Advanced Planning Problems (6)** Intermaggio
Examination of the anatomy of the region, analysis of findings, formulation of proposals, and presentation of the material to faculty and cooperating groups. (Fall—evening)
- 217 Urban Design Laboratory (3)** Winslow
Nature of physical forms in urban environment, cultural factors and human values which shape them. Tools and methods for creating man's total environment; hierarchy of values in the design process. (Spring—evening)
- 299 Thesis Seminar (3)** Staff
Examination of thesis standards, research philosophy, and methodology. (Fall and spring—as arranged)
- 300 Thesis Research (3)** Staff
(Fall and spring—as arranged)

* Offered by Virginia Polytechnic Institute on The George Washington University campus. Open to qualified GWU students

† Students registering for Urban and Regional Planning 207 make special arrangements with instructor for supplementary assignments equivalent to one additional semester hour. Dr. Nutting is Professor of Law in the National Law Center.

Public and International Affairs*

Professors A.E. Burns, J.W. Brewer, H.M. Merriman, R.H. Davison, W.H. Kraus, R.B. Thompson, J.W. Kendrick, H.L. LeBlanc, C.E. Galbreath, Kurt London, H.M. Stout, J.N. Mosel, W.C. Hopkins, F.H. Michael, R. E. Purcell, Joseph Aschheim, R.K. White, Benjamin Nimer, Tso-liang Hsiao (*Visiting Research*), Helen Yakobson, R.P. Sharkey, Andrew Gyorgy, Mario Rodriguez, C.B. Sargent (*Visiting*), George Stambuk, H.C. Hinton, H.M. Sachar, Walter Inman

Adjunct Professor P.F. Gallagher

Professorial Lecturers Lothar Metzl, Bela Maday, Joseph Baclawski, John Hardt, Arturo Morales-Carrion, Tao-tai Hsia, Matthew Gallagher, F.L. Hadsel

Associate Professors R.S. Jordan, Vladimir Petrov, C.J. Herber, P.P. Hill, R.W. Kenny, Ching-Yao Hsieh, Nadine Popluiko, W.R. Johnson, P.J. Mika, Sidney Ploss (*Research*)

Associate Professorial Lecturers Bernard Ramundo, Philip True, William Lewis, Donald Robinson, D.E. Nuechterlein, R.M. Field, Robert Ellert, Bernard Gordon

Assistant Professors J.K. McDonald, G.A. Olkhovsky, J.A. Morgan, Jr., Bernard Reich, W.F.E. Long, C.F. Elliott, Don Allensworth, A.S. Banks (*Visiting*), Richard Thornton

Assistant Professorial Lecturers George Chacko, C.A. Linden, T.M. Cooke

Bachelor of Arts in the field of International Affairs.—Prerequisite: the International Affairs curriculum, pages 73–74.

The general requirements are stated on pages 145–47. The sixty required semester hours must include: (1) Economics 181–82; six semester hours of foreign language composition and conversation; History 157, 182; Political Science 171, 181–82, 197; (2) fifteen semester hours of electives; (3) fifteen semester hours from one of the Group Options listed below:

Group I—International Politics (relevant courses in geography, history, and political science)

Group II—International Economics (relevant courses in business administration, economics, geography, and statistics)

Group III—International Communications (relevant courses in anthropology, geography, political science, psychology, and sociology)

Group IV—Regional Studies of Africa, Europe, Far East, Latin America, Middle East, and Soviet Orbit (relevant courses in anthropology, economics, geography, history, political science, and psychology)

Bachelor of Arts in the field of Public Affairs.—Prerequisite: the Public Affairs curriculum, page 74.

The general requirements are stated on pages 145–47. The sixty required semester hours must include: (1) Economics 102, 121, 161, 162; History 175–76; Political Science 121–22, 145, 151; (2) eighteen semester hours of electives; (3) twelve semester hours from one of the Group Options listed below:

Group I—Economics (Economics 101, 104, 163, 181)

Group II—Politics (Political Science 104, 111, 120, 146)

Certificate of the Institute for Sino-Soviet Studies.—A Bachelor's degree from an accredited college or university with an undergraduate major in a pertinent field, with emphasis on communist affairs.

* Staff of Instruction for the academic year 1967–68.

Programs in Public and International Affairs are administered by the School of Public and International Affairs, H.M. Stout, Dean.

The general requirements are stated on pages 152-53. The program consists of thirty semester hours of graduate study and the passing of a reading examination in Russian or Chinese, or both.

Master of Arts in the field of International Affairs.—A Bachelor's degree from an accredited college or university with background courses corresponding to an undergraduate major in international affairs at this University.

Required: in addition to the general requirements, pages 148-51, the following specific requirements must be met: (1) a scheduling of courses amounting to twenty-four semester hours, planned in consultation with the adviser on the basis of the student's selection from the following general and regional studies—(a) Comparative Government and Politics, Comparative Political Development, International Communications, International Communism, International Economics (including Theory and Development), International Law, International Organization, International Politics, Modern Political Theory, and Socialist and Communist Theory; (b) modern history, government and politics, and economic history and problems of Western Europe, Eastern Europe, Soviet Union, Latin America, Middle East, Sub-Saharan Africa, South Asia, Southeast Asia, Far East, Communist China; U.S. Diplomatic History, American Foreign Policy; (c) Sino-Soviet Affairs; (2) Political Science 299-300 Thesis (3-3); and (3) a set of written examinations over three fields within the broad area of international affairs (two general fields and one regional field constitute a frequently followed pattern).

Master of Arts in the field of Public Affairs.—Prerequisite: a Bachelor's degree from an accredited college or university with an undergraduate major in public affairs, economics, history, or political science, depending upon the field of specialization in the Master's program.

Required: the general requirements, pages 148-50, 151. The twenty-four semester hours of required courses (exclusive of Political Science 299-300 Thesis) are to be selected from one of the following fields of specialization: Domestic Economics (courses in economic development, economic policy, public finance, and national income); Domestic Politics (courses in U.S. social, constitutional, and political history; comparative government; political theory; legislative organization; jurisprudence; political parties; and public opinion).

Master of Science in International Affairs.—Offered in cooperation with the College of General Studies in the off-campus programs at the National War College, Fort McNair, Washington, D. C., and the Naval War College, Newport, R. I.

Religion*

Professor R.G. Jones (Chairman)

Associate Professors H.E. Yeide, Jr., Dewey Wallace, Jr.

Assistant Professor Sonya Quitslund (Visiting)

Assistant Professorial Lecturer E.W. Seaman

Bachelor of Arts with a major in Religion (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69, including Religion 9, 10, and 59-60.

Required: the general requirements, pages 74-78, and the passing of the Religion major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the history and literature of the world's religions with special emphasis on those of the West and the philosophical and ethical problems of religious thought. A student may elect to give special emphasis in his program to Christianity or to Judaism. A proseminar (Religion 199-

* Staff of Instruction for the academic year 1967-68.

200) assists the student in preparing for the major examination. A pamphlet containing a detailed description of the major is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the Department of Religion.

American Thought and Civilization 101 American Civilization is recommended as a senior-year elective for Religion majors.

Master of Arts in the field of Religion.—Prerequisite: an undergraduate major in Religion at this University, or equivalent.

Required: the general requirements, pages 83–87. Of the twenty-four semester hours of required courses (exclusive of the thesis), at least twelve must be in third-group religion courses; a maximum of nine may be in a closely related field outside the Department of Religion as approved by the Department.

Master of Arts in the field of Religious Education.—Prerequisite: an undergraduate major in Religion at this University or equivalent; the following specific courses or equivalent: Education 108; Psychology 1, 22, and 29; Anthropology 1; Speech 1 or 11.

Required: the general requirements, pages 83–87. Of the twenty-four semester hours of required courses (exclusive of the thesis), at least six must be in third-group religion courses; a maximum of twelve may be in a closely related field outside the Department of Religion as approved by the Department.

Doctor of Philosophy in the field of American Religious History (offered in cooperation with the Department of History).—See pages 83–85, 87–88, for requirements for the degree.

FIRST GROUP

9 The Old Testament (3)

Jones, Quitslund

Historical and literary study of the Old Testament with consideration of development of religious ideas, institutions, and outstanding personalities. (Fall—day and evening)

10 The New Testament (3)

Jones

Study of New Testament literature from the standpoint of occasion, purpose, dominant ideas, and permanent values. Emphasis on approach, structure, and significance of the Gospels and Epistles. (Spring—day and evening; summer 1968)

21 Introduction to Religious Thought (3)

Yeide

Traditional religious concepts, language of contemporary religion amidst modern scientific and secular intellectual tendencies, and the place of religion in today's society. (Fall and spring—day)

59–60 History of Religions (3–3)

Wallace and Staff

First half: primitive religion and the religions of the East (Hinduism, Buddhism, Taoism, Confucianism, Shinto). *Second half*: religions of the West and Near East (ancient religions, Judaism, Christianity, Islam). Origins, evolution, and contemporary status in historical context. (*First half*: fall—day and evening; spring—day; summer 1968. *Second half*: fall—day; spring—day and evening; summer 1968.)

SECOND GROUP

103 The Prophets (3)

Quitslund

Development of prophetism in the Old Testament; cultural, economic, psychological, and religious factors; elements of lasting value in the prophetic teaching. Study of selected prophets. (Fall—day; summer 1968)

- 104 The Life and Thought of Jesus (3)** Quitslund
Comprehensive study of the life and teachings of Jesus with critical attention to sources. (Spring—day)
- 105 The Life and Thought of Paul (3)**
Backgrounds of early Christianity, first century religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's presentation of the Christian faith. (Not offered 1968-69)
- 121 Philosophical Problems of Western Religious Thought (3)** Quitslund
Classical and contemporary religious thinkers with reference to the nature of religious truth and experience; the existence, character, and activity of God; and the predicament of man. (Spring—day)
- 122 Christian Ethics and Modern Society (3)** Yeide
Nature and principles of Christian life as developed by the Christian community; problems of personal conduct; application to family, social, and economic institutions. (Spring—evening)
- *127 Medicine, Religion, and Healing (1)** Yeide
Introduction to the Total Care concept emphasizing the importance of religion in medical practice for patient and physician. Concept of the professional man, the clergy's role in healing, Jewish and Christian faiths and their attitudes in problem areas. Case studies. (Spring—day)
- 131 History of Christianity to the Reformation (3)**
Rise and expansion of Christianity, development of Christian thought, and evolution of church organization and worship. (Not offered 1968-69)
- 132 History of Modern Christianity (3)**
Origin and development of Protestantism; Roman Catholic revival; status of Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life. (Not offered 1968-69)
- 135 History of Judaism to the Talmud (3)** Seaman
History and religious thought of the Jewish people from the Maccabean revolt to the compilation of the Talmud. (Fall—day)
- 136 History of Medieval and Modern Judaism (3)** Seaman
History and religious thought of the Jewish people from the compilation of the Talmud to the present. (Spring—day)
- 141-42 Religious Education (3-3)**
Religious education in the home, church, and community; basic educational procedures and special techniques; organization and administration of religious education. (Not offered 1968-69)
- 159 Hinduism (3)** Staff
Emergence of the structures of Hindu life and thought out of ancient Vedic religion, religious philosophy, role of Hinduism in Indian civilization. (Fall—day)

* Primarily for second-year students in the School of Medicine, but open to Religion majors with the approval of the instructor

- 160 **Buddhism (3)** Staff
Origin, development, and contemporary status of Buddhist life and thought; its impact on Asian civilization. (Spring—day)
- 172 **Religion in American Culture (3)** Wallace
Growth of religious bodies and institutions in relation to American culture, development of religious thought, and analysis of the contemporary religious scene. (Fall—evening; summer 1968)
- 199–200 **Proseminar: Readings for the Major (3–3)** Staff
Readings and group discussions. (Academic year—as arranged)
- THIRD GROUP**
- 209–10 **Seminar: Biblical Literature (3–3)**
Main problems of Biblical literary and historical criticism. (Not offered 1968–69)
- 211–12 **Seminar: Biblical Thought (3–3)** Jones
Biblical interpretation of history and reality and its relation to Biblical beliefs about God, man, and the world. (Academic year—as arranged)
- 222 **Seminar: Christian Ethics (3)** Yeide
Important tendencies in ethical reflection of the contemporary Christian Church; contributions of social sciences to that reflection. (Fall—evening)
- 231–32 **Seminar: Early and Medieval Christianity (3–3)** Jones
Christian thought from primitive beginnings to the Reformation. (First half: spring—evening. Second half: not offered 1968–69.)
- 233–34 **Seminar: Reformation and Modern Christianity (3–3)** Wallace
Western religious thought from the 16th century to the present. (First half: spring—evening. Second half: not offered 1968–69.)
- 241–42 **Seminar: Religious Education (3–3)**
Major problems in the practice of religious education. (Not offered 1968–69)
- 271 **Seminar: American Religious History to 1830 (3)**
Religious thought and life during the Colonial and early national period. (Not offered 1968–69)
- 273 **Seminar: American Religious History since 1830 (3)**
Religious thought and life from the antislavery movement to present. (Fall—evening)
- 291–92 **Readings and Research (3–3)** Staff
Investigation of special problems. (Academic year—as arranged; summer 1968)
- 299–300 **Thesis Research (3–3)**
(Academic year—as arranged; summer 1968)

Romance Languages and Literatures*

Professors L.A. Vigneras, Rafael Supervia, J.W. Robb

Associate Professors G.E. Mazzeo, J.A. Frey (*Chairman*), J.L. Métivier, Jr., J.F. Burks, Fred Abrams

Assistant Professors Elizabeth Neyman, R.M. Riggs, G.P. Huvé, Martha Adem. Mary Ann Coffland

Assistant Professorial Lecturers Esther Lawton, R.N. Nicolich

Instructors Elizabeth Burkley, Cecilia Uribe, Anne Cordero, Julia Hicks, Dorothy Betz, Diana Bronte, Maria Oden, Herbert Sims, Rhoda Miller, A.D. Genestre, Billie Gnodde, Ann Peaden

Lecturers Ofelia Anderson, Grace Campbell, Consuelo Eddy, Annemarie Hiebel, Porter Holbert, Joan Keefe, Francis-Paul LeBeau, Forrester Maphis, A.R. Mattos, Margarita Mazzeo, Anna O'Leska, J.V. Ordenes, Mary Poole, Helene Prono, LaVerne Queen, Ingrid Smith, Donatella Abbate, Fernando Gonzalez, Yvonne Grüninger

Director of Language Laboratories W.H. Ausman

Bachelor of Arts with majors in (1) French Language and Literature, (2) Spanish American Literature, and (3) Spanish Language and Literature (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69.

Required: the general requirements, pages 74–78, and the passing of the major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the political, social, and cultural backgrounds of the literature studied; the writers and their works. Proficiency in the spoken and written language is required. Majors in Romance Languages are strongly advised to study Latin, a knowledge of which is generally required for graduate work. A proseminar in each of the major fields assists the student in his preparation for the major examination.

Master of Arts in the fields of (1) French Language and Literature, (2) Spanish American Literature, and (3) Spanish Language and Literature.—Prerequisite: the degree of Bachelor of Arts in the appropriate field from this University, or equivalent.

Required: the general requirements, pages 83–87. The thirty semester hours of required work must include a thesis (six semester hours). The remainder of the program is arranged in consultation with the student's major adviser.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the Departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, Russian, or Spanish at this University, or equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 83–87, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, General Course in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Slavic, Spanish, Speech, and Statistics listed on pages 287–89.

Doctor of Philosophy fields of study in Romance Languages and Literatures: (1) French Literature (Old and Middle Renaissance, 17th Century, 18th Century, 19th Century, Modern); (2) Spanish Literature (Old, Medieval, Literature of the Siglo de Oro, 18th Century, 19th Century, Contemporary); (3) Spanish American Literature; and (4) Philology.—See pages 83–85, 87–88, for requirements for the degree.

* Staff of Instruction for the academic year 1967–68.

Bachelor of Arts in Education with teaching fields in French and in Spanish.—
Prerequisite: the Education curriculum, pages 71–72.

Required: the French option or the Spanish option and the professional courses listed on pages 99, 104, 105.

Placement Examination: a standardized placement examination given before registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination, assignment is made to the appropriate course, with credit assigned on the usual basis.

FRENCH

Departmental prerequisite: French 3–4 or 6, or equivalent, is required (French 51–52 is recommended) as prerequisite to all second-group courses in French.

FIRST GROUP

1–2 First-year French (3–3)

Staff

A year course: credit toward a degree at this University given on completion of French 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (*First half and second half: fall and spring—day and evening; summer 1968*)

2x First-year French (3)

Staff

Intensive course to which are assigned entering students with one or more years of high school French whose placement tests show them inadequately prepared for the regular work of French 3. Meets six hours a week (3 hours of lecture, 2 hours of drill, 1 hour of laboratory) and carries 3 semester hours of credit. Fee, \$205 (tuition fee of \$180 plus additional fee of \$25) plus laboratory fee, \$17.50. (*Fall—day and evening*)

3–4 Second-year French (3–3)

Staff

A year course: credit toward a degree at this University given on completion of French 4. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: French 1–2, 2x, or two years of high school French. (*First half and second half: fall and spring—day and evening; summer 1968*)

6 Second-year French (6)

Staff

Lecture (3 hours), discussion (3 hours). Intensive, accelerated course which covers material of French 3–4. Grammar review, reading, conversation. Prerequisite: two years of high school French with grades of *B* or better; or *B* or better in French 2 or 2x. (*Spring—day*)

9–10 French Conversation and Composition (3–3)

Staff

Prerequisite: French 4 or equivalent and permission of instructor. (*First half: fall—day and evening; spring—day; summer 1968. Second half: fall—day; spring—day and evening; summer 1968.*)

49 French for Graduate Students (0)

Lawton and Staff

For graduate students preparing for reading examinations. No academic credit. Tuition fee, \$180. (*Fall and spring—evening; summer 1968*)

51-52 Survey of French Literature and Civilization (3-3)

Métivier

Social, artistic, and cultural background of French literature. Lectures, readings, recitations, and informal discussions. (*First half: fall—day; spring—evening; summer 1968. Second half: fall—evening; spring—day.*)

91-92 Analyse de texte (3-3)

Staff

Methodology and vocabulary of literary criticism; application of principles of *explication de texte* to selections from prose, drama, and poetry from the Renaissance to the present. (Academic year—day)

SECOND GROUP**103-4 Problems of Pronunciation and Intonation (3-3)**

Huvé

Recommended for majors and required for a Bachelor of Arts in Education degree with a teaching field in French. (Academic year—day)

109-10 Advanced French Conversation and Composition (3-3)

Cordero, Genestre, Huvé

First half: emphasis on diction. Second half: emphasis on style. Prerequisite: French 10 or equivalent and permission of instructor. (Academic year—day; summer 1968—French 109)

119-20 16th Century French Literature (3-3)

Métivier

Prose, poetry, drama, and memoirs of the French Renaissance: Rabelais, Montaigne, Marot, La Pléiade, etc. Class analysis of texts, collateral reading. (Not offered 1968-69)

121-22 17th Century French Literature (3-3)

Riggs

History, philosophy, criticism, memoirs, letters, eloquence, drama, fiction, poetry. Class analysis of texts; collateral readings. (Academic year—day)

123-24 18th Century French Literature (3-3)

Genestre

History, philosophy, criticism, letters, drama, fiction, poetry, the "salons," idea of progress, idea of science. Class analysis of texts, collateral reading, lectures on literature and history. (Not offered 1968-69)

125-26 19th Century French Literature (3-3)

Betz

Poetry, drama, and novel of the 19th century with emphasis on stylistic analysis. (Academic year—day)

127-28 20th Century French Literature (3-3)

Coffland

Fiction, poetry, and drama from 1900 to present. Chronological examination of authors, movements. (Academic year—day)

129-30 Contemporary French Literature (3-3)

Burks

(*First half: not offered 1968-69. Second half: summer 1968.*)

199-200 Proseminar: Readings for the Major (3-3)

Coffland, Riggs

Conferences and group discussions. (Academic year—day)

THIRD GROUP**201 Grammar, Composition, and Stylistics (3)**

For secondary teachers of the French language and graduate students preparing to teach in secondary schools. (Summer 1968)

- 212 Historical French Grammar (3)**
Phonology, morphology, and syntax of Old French; its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in French literature, Romance 279 (see General Romance Course), and an elementary knowledge of Latin. (Fall—day)
- 213-14 Old French (3-3)** Vigneras
French literature to the end of the Middle Ages. Prerequisite: a second-group course in French literature and permission of instructor. (Not offered 1968-69)
- 224 Seminar: the Age of Rabelais (3)** Burks
(Not offered 1968-69)
- 226 16th and 17th Century Philosophical Literature (3)** Burks
The emergence of a literature of ideas; emphasis on the thought of Calvin, Montaigne, Descartes, and Pascal. (Not offered 1968-69)
- 228 Seminar: the Literary Renaissance in Europe (3)** Burks
Study of developments in the poetry of Italy, France, and England. (Fall—day)
- 231-32 Theater in the 17th Century (3-3)**
Survey of the development of theatrical arts and the drama. Research papers and reports. Prerequisite: French 121-22 or equivalent. (Academic year—day)
- 234 17th Century Nondramatic Literature (3)**
Rationalism and the revolt against authority expressed in literature. Development of classical doctrine. (Not offered 1968-69)
- 241 The Rationalistic Current in the 18th Century (3)**
The contribution of the *philosophes* to the intellectual evolution of France and Europe. (Not offered 1968-69)
- 242 Seminar: the French Novel in the 18th Century (3)**
Development of the novel in France from *La Princesse de Clèves* to the French Revolution; themes and techniques. (Fall—day)
- 244 Special Problems in 18th Century French Literature (3)**
(Not offered 1968-69)
- 250 Romanticism in France (3)** Frey
Theory and practice of romanticism in France: romantic love, Napoleonic myth, exoticism, local color, sensationalism, and religiosity as reflected in new styles of prose and poetry. (Fall—day)
- 256 19th Century French Literature (3)** Betz
(Summer 1968)
- 257 Special Problems in the 19th Century Novel (3)** Frey
Topic for 1968-69: Balzac. (Spring—day)
- 258 Special Problems in 19th Century French Poetry (3)** Frey
Topic for 1968-69: Parnassian poetry. (Spring—day)

264 Seminar: Modern Period (3)

Coffland

Topic for 1968-69: 20th century novel, thematic and historical study.
(Spring—day)

265 20th Century French Theater (3)

Coffland

(Not offered 1968-69)

266 20th Century French Poetry (3)

Coffland

Background and development of poetry in the 20th century; *explication de texte* approach. (Spring—day)

299-300 Thesis Research (3-3)

Staff

FOURTH GROUP**398 Advanced Reading and Research (arr.)**

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit (Fall and spring—as arranged; summer 1968)

ITALIAN**FIRST GROUP****1-2 First-year Italian (3-3)**

Oden

A year course: credit toward a degree at this University given on completion of Italian 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (Academic year—day; summer 1968)

3-4 Second-year Italian (3-3)

Coffland

A year course: credit toward a degree at this University given on completion of Italian 4. Conversation, grammar, composition, reading in modern Italian prose, introduction to Italian civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: Italian 1-2 or two years of high school Italian. (Academic year—day; summer 1968)

9-10 Italian Conversation and Composition (3-3)

Oden

Prerequisite: Italian 4 or equivalent and permission of instructor. (Academic year—day)

51-52 Introduction to Italian Literature (3-3)

Oden

Prerequisite: Italian 4 or equivalent. (Academic year—day)

SPANISH

Departmental prerequisite: Spanish 3-4 or 6, or equivalent, is required (Spanish 51-52 is recommended) as prerequisite to all second-group courses in Spanish.

FIRST GROUP

1-2 First-year Spanish (3-3)

Staff

A year course: credit toward a degree at this University given on completion of Spanish 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (*First half and second half: fall and spring—day and evening; summer 1968*)

2x First-year Spanish (3)

Staff

Intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. Meets six hours a week (3 hours of lecture, 2 hours of drill, 1 hour of laboratory) and carries 3 semester hours of credit. Fee, \$205 (tuition fee of \$180 plus additional fee of \$25) plus laboratory fee, \$17.50. (*Fall—day*)

3-4 Second-year Spanish (3-3)

Staff

A year course: credit toward a degree at this University given on completion of Spanish 4. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: Spanish 1-2, 2x, or two years of high school Spanish. (*First half and second half: fall and spring—day and evening; summer 1968*)

6 Second-year Spanish (6)

Staff

Lecture (3 hours), discussion (3 hours). Intensive, accelerated course which covers material of Spanish 3-4. Grammar review, reading, conversation. Prerequisite: two years of high school Spanish with grades of B or better, or B or better in Spanish 2 or 2x. (*Spring—day*)

9-10 Spanish Conversation and Composition (3-3)

Staff

Prerequisite: Spanish 4 or equivalent and permission of instructor. (*First half and second half: fall and spring—day; summer 1968*)

49 Spanish for Graduate Students (0)

Hicks, Sims

For graduate students preparing for reading examinations. No academic credit. Tuition fee, \$180. (*Fall and spring—evening*)

51-52 Survey of Spanish Literature and Civilization (3-3)

Supervia

Social, artistic, and cultural background of Spanish literature. Lectures, readings, recitations, and informal discussions. (*Academic year—day*)

91-92 Explicacion de textos (3-3)

Adem

Analytical introduction to Spanish and Spanish American literature. Method demonstrated and practiced on selected passages. (*Academic year—day*)

SECOND GROUP

- 103 Problems of Pronunciation and Intonation (3)** Adem
Descriptive and practical review of Spanish sounds and inflections. Remedial exercises. Recommended for majors; required for the Bachelor of Arts in Education degree with teaching field in Spanish. (Fall—day)
- 109-10 Advanced Spanish Conversation and Composition (3-3)** Mazzeo
Emphasis on diction and style. Prerequisite: Spanish 10 or equivalent and permission of instructor. (Academic year—day)
- 119-20 Medieval Spanish Literature (3-3)** Neyman
Survey by genre of the literature of the Middle Ages. (Academic year—day)
- 121-22 Spanish Literature of the Golden Age (3-3)** Abrams
First half: development of the Spanish drama from its origins to 1680, emphasis on Lope de Vega; the evolution of Spanish poetry. *Second half:* origins and development of the novel in the Golden Age, emphasis on the picaresque. (Not offered 1968-69)
- 123-24 Cervantes: Don Quijote (3-3)** Abrams
Cervantes' literary theories as reflected in the *Novelas Ejemplares* and the *Quijote*. The *Quijote* as a panorama of the social, political, and religious problems in the Spain of Cervantes. (Academic year—day)
- 125-26 Modern Spanish Literature (3-3)** Mazzeo
Prose, poetry, and drama of the 18th and 19th centuries. Class analysis of texts, collateral reading, lectures on literature and history. (Academic year—day)
- 127-28 Contemporary Spanish Literature (3-3)** Supervia
Prose and poetry of the 20th century. Class analysis of texts, collateral reading, lectures on literature and history. (Not offered 1968-69)
- 129 The Romantic Drama in Spain (3)** Mazzeo
Lectures on the Spanish Romantic Drama, class analysis of representative plays, collateral reading. (Summer 1968 and alternate summers)
- 130 The Modern Spanish Essay (3)** Mazzeo
Development of the Spanish essay from the 16th century: emphasis on the 18th and 19th centuries. Class analysis of texts, collateral reading, and lectures. (Summer 1969 and alternate summers)
- 151-52 The Spanish American Novel (3-3)** Robb
Development of the novel in Spanish America. Lectures, collateral reading, and class analysis of texts. (Academic year—evening)
- 155-56 Spanish American Literature to 1880 (3-3)** Robb
Literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. (*First half:* not offered 1968-69. *Second half:* summer 1968.)

- 157-58 **Spanish American Literature since 1880 (3-3)** Robb
Literature of Spanish America from 1880 to the contemporary period. Lectures, collateral reading, reports, and class analysis of important works. (Not offered 1968-69)
- 197-98 **Proseminar: Readings for the Major in Spanish American Literature (3-3)** Robb
Required of all majors. Conferences and group discussions. (Academic year—as arranged)
- 199-200 **Proseminar: Readings for the Major in Spanish Language and Literature (3-3)** Adem, Mazzeo
Required of all majors. Conferences and group discussions. (Academic year—day)

THIRD GROUP

- 201 **Grammar, Composition, and Stylistics (3)**
For secondary teachers of the Spanish language and graduate students preparing to teach in secondary schools. (Summer 1968)
- 212 **Historical Spanish Grammar (3)**
Phonology, morphology, syntax, and lexicology of Old Spanish, including its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in Spanish literature, Romance 279 (see General Romance Course), and an elementary knowledge of Latin. (Not offered 1968-69)
- 214 **Old Spanish (3)**
Literature and language: *El poema de Mio Cid*, *El Conde Lucanor*, *El Libro de Buen Amor*, etc. Prerequisite: second-group course in Spanish literature, Romance 279 (see General Romance Course), and an elementary knowledge of Latin. (Fall—day)
- 221 **Seminar: Works of Cervantes (3)** Abrams
Cervantes' works as literary expressions of his polemics with contemporaries on literary theory. The *Quijote* viewed as a satire against Lope de Vega and Tirso de Molina who appear in it as Don Quijote and Sancho Panza. Explication of Cervantes' cryptographic technique. (Fall—day)
- 224 **Problems in Spanish Renaissance Literature (3)**
(Spring—day)
- 225 **Special Problems in Golden Age Literature (3)** Abrams
(Not offered 1968-69)
- 229 **The Two Quijotes (3)** Abrams
Intensive analysis of Avellaneda's *False Quijote*. Structural and ideological relationship to both halves of the original. Explication of Avellaneda's cryptographic technique. (Spring—day)
- 231 **Seminar: 18th Century Spanish Writers (3)** Mazzeo
Lectures and analysis of principal authors and works; relationships with subsequent literary movements. (Not offered 1968-69)

- 242 Seminar: Spanish Romanticism (3)** Mazzeo
Lectures and analysis of principal authors and works. Collateral readings. Problems of origins and developments. (Not offered 1968-69)
- 244 Seminar: Naturalism and the Spanish Novel (3)** Mazzeo
Development of Naturalism in 19th century Spain. Analysis of representative works of Pardo Bazán, Clarín, Blasco-Ibáñez, and others. (Fall—day)
- 245-46 Seminar: Works of Galdós (3-3)** Supervia
Ideological and stylistic analysis; relationship of his works to literary movements of the second half of the 19th century. (Academic year—day)
- 251 Seminar: Works of Unamuno and Ortega y Gasset (3)** Supervia
Study of their thought; analysis and commentary on the texts. (Not offered 1968-69)
- 252 Spanish Literature since the Civil War (3)** Adem
(Not offered 1968-69)
- 253 Seminar: Contemporary Spanish American Poets (3)** Robb
Selected post-Modernist poets: G. Mistral, P. Neruda, "Los Contemporáneos," O. Paz, L. De Greiff, the Nadaístas, G. Pardo Gracia. (Fall—day)
- 261 Seminar: Spanish American Essayists (3)** Robb
The Spanish American essay as an artistic form; studies in selected modern essayists—Rodó, Mallea, Vasconcelos, and Arciniegas. (Not offered 1968-69)
- 264 Seminar: Recent Trends in Spanish American Fiction (3)** Robb
Contemporary *cuentistas* and novelists: J.L. Borges, J.J. Arreola, J. Rulfo, A. Yáñez, C. Fuentes, V. Leñero, J. Cortázar, M. Vargas Llosa, F. González, etc. (Spring—day)
- 266 Seminar: Alfonso Reyes (3)** Robb
Alfonso Reyes the essayist-artist, poet, and complete humanist as studied in his various prose and poetic works. (Not offered 1968-69)
- 299-300 Thesis Research (3-3)** Staff
(Academic year—as arranged)

FOURTH GROUP

- 398 Advanced Reading and Research (arr.)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 399 Dissertation Research (arr.)** Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

GENERAL COURSE IN ROMANCE LANGUAGES AND LITERATURES

279 Introduction to Romance Philology and Linguistics (3)

Principles found in the development of the Romance Languages and methods of analysis at the present time. General course for graduate students in the fields of the Romance languages and literatures. Prerequisite: an elementary knowledge of Latin. Normally followed by French 212 or Spanish 212. (Not offered 1968-69)

Sino-Soviet Studies

See "Institute for Sino-Soviet Studies."

Slavic and Oriental Languages and Literatures*

Professor Helen Yakobson (*Chairman*)

Associate Professors Nadine Popluiko, Chung-wen Shih, C.A. Moser

Associate Professorial Lecturer J.M. Blum

Assistant Professors G.A. Olkhovsky, G.C.Y. Wang, Kosara Gavrilovic, Pao-chien Tseng, Mykola Stepanenko

Assistant Professorial Lecturers Milenko Filipovitch-Nikatch, J.R. Child, M.L. Howder, Victoria Sandor, Juri Jelagin, E.P. Kahkin, Vladimir Nikolsky.

Hsing-Hua Tseng, Ping-feng Chi, Mary Miller, T.A. Wittlin

Instructor Irene Thompson

Lecturer Marija Mihajlov

Bachelor of Arts with a major in Russian Language and Literature (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 69.

Required: the general requirements, pages 74-78, and the passing of the major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the political, cultural, and social backgrounds of Russian literature; Russian cultural history; the Russian language—its structure and usage. Proficiency in spoken and written Russian language is required. Students who are already proficient in Russian may, upon passing an appropriate examination, waive any or all of the first-group language courses, as well as up to six hours of second-group language courses. The Department provides a proseminar intended to assist the student in his preparation for the major examination.

Master of Arts in the field of Russian Language and Literature.—Prerequisite: the degree of Bachelor of Arts with a major in Russian Language and Literature from this University, or equivalent.

Required: the general requirements, pages 83-87. The thirty semester hours of required work must include a thesis (six semester hours). The remainder of the program is arranged in consultation with the student's adviser.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Slavic and Oriental Languages and Literatures, Germanic Languages and Literatures, and Romance Languages and Literatures).—Prerequisite: a

* Staff of Instruction for the academic year 1967-68.

Bachelor of Arts degree, preferably with a major in Russian, French, German, or Spanish at this University, or equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 83-87, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, General Course in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Slavic, Spanish, Speech, and Statistics listed on pages 287-89.

Bachelor of Arts in Education with a teaching field in Russian.—Prerequisite: the Education curriculum, pages 71-72.

Required: the Russian option and the professional courses listed on pages 103, 105.

CHINESE (MANDARIN)

FIRST GROUP

1-2 First-year Chinese (3-3)

Wang

A year course: credit toward a degree at this University given on completion of Chinese 2. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (Academic year—evening; summer 1968)

3-4 Second-year Chinese (3-3)

Wang

A year course: credit toward a degree at this University given on completion of Chinese 4. Continuation of grammar and spoken Chinese, more emphasis on the written language, reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: Chinese 1-2 or equivalent. (First half: fall and spring—evening. Second half: spring—evening.)

5-6 Intensive First year Chinese (6-6)

Shih

A year course: credit toward a degree at this University given on completion of Chinese 6. Classroom (6 hours), tutorial (4 hours), laboratory (1 hour). Intensive beginners' course in fundamentals of grammar and pronunciation with graded reading and written practice. Tutorial sessions to facilitate aural comprehension and oral expression. Listening comprehension and oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (Academic year—day)

7-8 Intensive Second-year Chinese (6-6)

P. Tseng

A year course: credit toward a degree at this University given on completion of Chinese 8. Classroom (6 hours), tutorial (4 hours), laboratory (1 hour). Intermediate intensive course. Reading basic texts. Writing short pieces. Conversation. Systematic review of grammar. Laboratory fee, \$17.50 a semester. Prerequisite: Chinese 5-6 or equivalent. (Academic year—day)

SECOND GROUP

101-2 Readings in Modern Chinese (3-3)

Wang

Reading of selected Chinese periodicals and texts in social sciences. Study of current political terminology and Chinese idiom. (Academic year—evening)

- 103 Intensive Readings in Modern Chinese (6)** P. Tseng
Intensive readings in selected modern literary works, social sciences, and documentary materials. Prerequisite: Chinese 8 or equivalent. (Fall—day)
- 105 Introduction to Classical Chinese (Intensive) (6)** Staff
Introduction to classical writings in Chinese literature—history and philosophy. Prerequisite: Chinese 4 or 6. (Spring—day)
- 107-8 The Novel of the Ming-Ch'ing Period (3-3)** Staff
Selected readings of Ming-Ch'ing's novels in the original texts; historical development and stylistic traits. Prerequisite: Chinese 8 or equivalent. (Not offered 1968-69)
- 125 Chinese Linguistic Structure (3)** Staff
Descriptions and explanations of grammatical relations and transformations of Mandarin Chinese. (Fall—evening)
- 126 Comparative Chinese-English Linguistic Structure (3)** Staff
Contrastive study of the sound and sentence structure in English and Chinese. Fundamental concepts of linguistic theory and their application in foreign language teaching. (Spring—day)
- 163-64 Chinese Literature in Translation (3-3)** Shih
General survey of the development of Chinese literature from ancient times to present. Major works will be studied in terms of their historical development. (Academic year—day)

SLAVIC

Placement Examination: a standardized placement examination given before registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination, assignment is made to the appropriate course, with credit assigned on the usual basis.

FIRST GROUP

1-2 First-year Russian (3-3) Yakobson and Staff

A year course: credit toward a degree at this University given on completion of Slavic 2. Beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (First half and second half: fall and spring—day and evening; summer 1968)

3-4 Second-year Russian (3-3) Yakobson and Staff

A year course: credit toward a degree at this University given on completion of Slavic 4. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Laboratory fee, \$17.50 a semester. Prerequisite: Slavic 1-2 or two years of high school Russian (First half: fall—day and evening; spring—evening. Second half: fall—evening; spring—day and evening.)

5-6 Intensive First-year Russian (6-6)

Thompson

A year course: credit toward a degree at this University given on completion of Russian 6. Classroom (6 hours), tutorial (4 hours), laboratory (1 hour). Beginners' intensified course in fundamentals of grammar and pronunciation with graded reading and written practice. Tutorial drill sessions to facilitate aural comprehension and oral expression. Listening comprehension and oral practice in language laboratory. Laboratory fee, \$17.50 a semester. (Academic year—day)

7-8 Intensive Second-year Russian (6-6)

Staff

A year course: credit toward a degree at this University given on completion of Russian 8. Classroom (6 hours), tutorial (4 hours), laboratory (1 hour). Intermediate intensified course. Systematic review and study of special problems of Russian morphology and syntax. Oral reports on assigned topics. Laboratory fee, \$17.50 a semester. Prerequisite: Russian 5-6 or equivalent. (Academic year—day)

9-10 Russian Conversation and Composition (3-3)

Staff

Listening comprehension; oral and written practice. Laboratory fee, \$17.50 a semester. Prerequisite: Slavic 3-4 or 7-8, or permission of instructor. (Academic year—day and evening)

47 Beginning Russian for Reading Examination Candidates (0)

Staff

For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$180. (Fall—evening; summer 1968)

49 Russian Readings for Nonmajor Students (3)

Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of instructor. No academic credit for graduate students. Prerequisite: Slavic 4, 8, or 47; or equivalent. (Spring—evening; summer 1968)

91-92 Introduction to Russian Literature (3-3)

Gavrilovic

Survey of Russian literature, in translation, from earliest periods through literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion—in English. (First half and second half: fall and spring—day; summer 1968)

93-94 Introduction to Slavic (non-Russian) Literature (3-3)

Filipovitch-Nikatch

Survey of non-Russian Slavic literatures, in translation, from early periods to present; emphasis on the contemporary scene. Lecture, recitation, and discussion—in English. (Academic year—evening)

SECOND GROUP**101-2 Readings in Modern Russian (3-3)**

Yakobson and Staff

Representative reading and translation of Soviet periodicals and selected texts in social sciences. Study of current political terminology, abbreviations, Soviet idiom. Prerequisite: Slavic 4 or 8, or equivalent. (Academic year—day)

109-10 Advanced Russian Conversation and Composition (3-3)

Staff

Developing proficiency in oral and written expression. Prerequisite: Slavic 8, 10; or equivalent. (Academic year—evening)

- 125 Russian Linguistic Structure I (3)** Thompson
Linguistic description of Russian phonology and morphophonemics.
(Fall—day)
- 126 Russian Linguistic Structure II (3)** Thompson
(Formerly *Comparative Russian-English Linguistic Structure*)
Linguistic description of Russian morphology, syntax, and lexicon.
(Spring—day)
- 128 Dostoevsky, the Man and the Artist (3)** Popluiko
Sources and development of his philosophical, religious, and aesthetic ideas. His influence on Russian and Western literature. Lectures, discussions, and reports—in English. (1969–70 and alternate years)
- 131 18th Century Russian Literature (3)** Moser
Survey course in the history of Russian literature from 1700 to approximately 1820. Discussion of the rise of poetry, classicism, sentimentalism; the beginnings of prose—in English. (1968–69 and alternate years: fall—evening)
- 141–42 19th Century Russian Literature (3–3)** Staff
Major Russian writers and literary trends from end of the 18th century to Chekhov: fiction, poetry, drama. Lectures, individual reports on assigned topics, and class analysis of selected works—in Russian. Prerequisite: Slavic 4 or 8, or equivalent. (1968–69 and alternate years: academic year—day)
- 143–44 The Russian Novel (3–3)** Moser
Genesis and development of the Russian novel. Evolution of form and techniques. Analysis of style, philosophy, and political ideology of representative novels of the 19th and 20th centuries—in English. (1969–70 and alternate years)
- 145–46 The Russian Short Story (3–3)** Popluiko
Study of historical development of the short story form in Russia. Lectures, reports, and class analysis—in Russian. Prerequisite: Slavic 8 or equivalent. (1968–69 and alternate years: academic year—evening)
- 151–52 20th Century Russian Literature (3–3)** Popluiko
Symbolism, acmeism, futurism, and realism: prose, poetry, drama. Class analysis of selected texts. Recitations and reports in Russian. Prerequisite: Slavic 4 or 8, or equivalent. (1969–70 and alternate years)
- 153 Turgenev (3)** Moser
Reading and discussion of Turgenev's works. Emphasis on the novels; major short stories analyzed and some time spent on his plays and other prose works—in English. (1968–69 and alternate years: fall—day)
- 154 Gogol (3)** Moser
Reading and discussion of Gogol's major works. Analytical study of short stories and plays—in English. (1968–69 and alternate years: spring—day)
- 156 Leo Tolstoy, His Life and Works (3)** Popluiko
Evolution of Tolstoy's artistic and philosophical ideas. Tolstoy's impact on Russian literature and society. Lectures, reports, and classroom analy-

364 COURSES OF INSTRUCTION

sis of his major works—in English. (1968–69 and alternate years: spring—evening)

161–62 **Russian Culture (3–3)**

Oikhovsky

Survey of Russian cultural heritage from origins of ancient Russia to present—in English. Lectures, recitation, discussion, and individual reports on assigned topics. (Academic year—day)

165 **Soviet Literature (3)**

Staff

Survey of major literary figures, movements, styles. Revolution and its impact on literature and writers. Revival of the psychological novel, short story, contemporary poetry—in English. (Fall—evening)

197 **Special Problems in Teaching Russian (3)**

Yakobson

Discussion of methodology, examination of textbooks, observation of classroom procedures. Prerequisite: 18 semester hours of Russian language. (Spring—day)

199–200 **Proseminar: Readings for the Major in Russian Language and Literature (3–3)**

Staff

Conferences and group discussions. (Academic year—as arranged)

THIRD GROUP

215–16 **History of the Russian Literary Language (3–3)**

Staff

Historical background for an understanding of phonology and morphology of Modern Russian. (1968–69 and alternate years: academic year—as arranged)

225 **Pushkin and the Poets of His Time**

Popluiko

Pushkin's predecessors; Pushkin's influence on the literature of his time. Lermontov—the heir to Pushkin's poetic tradition. (1969–70 and alternate years)

253 **Seminar: Literary Criticism (3)**

Popluiko

Study of leading Russian critics and their role in the development of Russian literature; the emergence of various literary schools. (1969–70 and alternate years)

254 **Seminar: Literary and Intellectual Currents of the 1860's (3)**

Moser

Discussion of literary and intellectual developments in the Russia of the 1860's. Major figures will be treated in their relation to the milieu of the decade—in Russian. (1968–69 and alternate years: spring—evening)

255 **Seminar: Main Trends in 20th Century Russian Literature (3)**

Popluiko

Study of representative works since 1900; their artistic and social value—in Russian. (1968–69 and alternate years: fall—evening)

299–300 **Thesis Research (3–3)**

(Academic year—as arranged)

Sociology*

Professors R.W. Stephens, I.H. Cisin, Norman Kaplan, H.J. Parry, R.G. Brown
(Chairman)

Associate Professor T.F. Courtless, Jr.

Associate Professorial Lecturers Oliver Moles, Jr., J.S. Schiller, Artemis Emmanuel, Barbara Kaplan, L.J. Silverman

Assistant Professor C.S. Harris

Assistant Professorial Lecturers R.F. Guerrin, Jackwell Susman, Leonard Zeitz, Gilda Haber

Instructor J.L. Tropea

Lecturers Charlotte Anker, Beverly Fogle, K.J. Neubeck

Bachelor of Arts with a major in Sociology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Sociology 1-2 or equivalent.

Required: in addition to the general requirements, pages 74-78, twenty-four semester hours in Sociology, which must include 141, 149, 191; and Statistics 53 or 104.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Sociology majors.

Master of Arts in the field of Sociology.—Prerequisite: a Bachelor's degree with a major in Sociology or in an approved related field. Applicants should present scores on the Graduate Record Examination, preferably including the Advanced Test in Sociology, and arrange for former professors to write letters of reference to the Graduate School of Arts and Sciences.

Required: the general requirements, pages 83-87, including Sociology 142, 231, 233-34. All courses must be approved in advance by the adviser.

Doctor of Philosophy fields of study in Sociology: Complex Organizations, Social Organization, Social Research Methods, Sociological Theory, Sociology of Education, and Urban Sociology.—See pages 83-85, 87-88, for requirements for the degree.

Departmental prerequisite: Sociology 1 is prerequisite to all second- and third-group courses in Sociology.

FIRST GROUP

1-2 Introductory Sociology (3-3)

Development of culture and personality, impact of groups and institutions on man's social behavior. Survey of fields within sociology. (First half and second half: fall and spring—as arranged; summer 1968)

41 American Social Problems (3)

Analysis of major social problems confronting the United States. Factors producing social problems, their nature and treatment. (Fall and spring—day; summer 1968)

51 Criminology (3)

Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime. (Fall and spring—day)

* Staff of Instruction for the academic year 1967-68.

SECOND GROUP

- 110 The Sociology of Work (3)** Brown
 Introductory survey of industrial sociology; sociology of occupations and professions; industry-community relations; and analysis of large, complex organizations. (Spring—day)
- 124 Medical Sociology (3)** Brown, Guerrin
 Sociological factors and processes which relate to physical and mental health and disease; analysis of patterned social relationships in the field of health and medicine, the hospital as a social system. (Fall—day)
- 125 Sociology of Religion (3)** Yeide
 Introduction to history of the discipline; analysis of reciprocal impact of secular upon religious and religious upon secular institutions. (Summer 1968)
- 126 Urban Sociology (3)** Stephens
 Place of the city in larger society; growth of the city, problems of urban living, group life, personality, urban housing, city planning, and suburban development. (Spring—day)
- 127 Population Problems (3)**
 Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: eugenics and birth control. (Not offered 1968-69)
- 128 Small Group Processes (3)** Staff
 Human interaction in small groups: group structure, social control and influence, communication processes; deviance and conformity analyzed. (Fall—day)
- 129 Race and Minority Groups (3)** Stephens
 Analysis of relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. (Fall or spring—as arranged; summer 1968)
- 130 Social Stratification: Class and Status (3)** Stephens
 Nature of class structure, patterns of status, prestige relations, differential class behavior, analysis of comparative social structure and social mobility. (Spring—day)
- 131 Social Institutions (3)** Silverman
 Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American society. (Spring—evening)
- 133 Sociology of Education (3)** Tropea
 Analysis of educational systems from an institutional and organizational perspective and as agencies of socialization; relationships of education in general to society, including technological, communal, and subcultural components. (Fall—evening)

- 134 Marriage and the Family (3)** Moles, Schiller
Courtship as a social process, marriage and marital adjustment, development of the family, parent-child relations, family problems, disorganization, divorce and family reorganization. (Spring—evening)
- 135 Juvenile Delinquency (3)** Courtless, Tropea
Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders. Prerequisite: Sociology 51. (Fall and spring—day)
- 137 Sociology of Law (3)** Susman
Law as a social phenomenon and agency of social control. Analysis of problems of legal concepts, doctrine, and institutions. (Spring—evening)
- 138 Social Disorganization (3)** Cisin, Tropea
Analysis of factors contributing to disruption of social groups, institutions and communities; study of attempts to establish social controls to prevent, minimize, or mitigate the effects of socially disruptive conditions and events. (1969-70 and alternate years)
- 139 Society and the Deviant (3)** Tropea
Analysis of relationship of society, socialization, and deviancy. Social responses to deviancy and criminal offenders; rehabilitative programs in community, courts, and schools. Prerequisite: Sociology 51. (1968-69 and alternate years: spring—day; summer 1968)
- 141 Social Research Methods (3)** Cisin, Courtless
Introduction to scientific method in the development of social theory and the solution to social problems. (Fall and spring—as arranged; summer 1968)
- 142 Advanced Social Research Methods (3)** Cisin
Translation of concepts into indices and the analysis and interpretation of research results, measurement, scales and scoring, hypothesis testing. Prerequisite: Sociology 141. (Fall and spring—as arranged)
- 144 Public Opinion and Mass Communication (3)** Parry
Communication process with emphasis on international communications, propaganda, and mass media; measurement of propaganda campaigns. (Fall—day)
- 147 Sociology of Complex Organizations (3)** Staff
Sociological analysis of large scale organizations, individual accommodations to such organizations, impact of large organizational pattern on American social life. (Fall—day)
- 149 Development of Social Theory (3)** Stephens
Systematic study of important schools of sociological theory, both European and American development; evaluation of scientific contributions of each school. (Fall and spring—day; summer 1968)
- 191 Current Emphases in Sociology (3)** Staff
Analysis and evaluation of recent developments in the general field of sociology and a review and discussion of basic concepts. Required course for all sociology majors in the senior year. (Fall—day; spring—day and evening; summer 1968)

THIRD GROUP

- 220 Religious Institutions in the United States (3)** Yeide
Structural variety of religious institutions and patterns of interaction between religious and secular institutions in contemporary American life. (Spring—evening)
- 223 Immigration and Assimilation (3)**
Examination of the nature and scope of immigration, analysis of adjustment of immigrants to a receiving society, formation of ethnic and minority groups, the American experience. (Spring—evening)
- 225 Seminar: Small Groups (3)** Moles
General characteristics of small groups and their measurement, evaluation of small group research and theory, individual reports and projects. (Spring—evening)
- 231-32 Seminar: Advanced Social Research Methods (3-3)** Cisin
Intensive study and evaluation of current trends in the methodology of social research. Discussion on individual student projects and recently published research. (*First half: spring—as arranged. Second half: not offered 1968-69.*)
- 233-34 Seminar: Theory Construction and Application (3-3)** Staff
(Formerly Seminar: Theory Construction and Testing)
Critical examination of the elements of current theories in the social sciences with the major objective of developing general principles of theory construction; consideration of the functions of theory in sociological research. (Academic year—as arranged)
- 237 Seminar: Family Relations (3)** Moles
Recent research and theory on aspects of family structure and functioning, their antecedents in the larger social order, and their consequences for individual family members. Special projects and papers. (Spring—evening)
- 240 Sociology of Occupations (3)** Brown, Harris
Analysis of occupational roles and structures and changes within them: recruitment and training; adjustment problems at various stages of the career; interrelationships of stratification systems, life styles, and occupations. (Fall—evening)
- 241 Seminar: Population Research and Analysis (3)**
Experience in some of the techniques of population research. Sampling, questionnaire construction, and interviewing; tabular presentation, data analysis and research experience stressed. (Not offered 1968-69)
- 242 Sociology of Health and Illness (3)** Brown
Sociological analysis of social and cultural factors in the etiology and treatment of illness. Specifically covers social epidemiology, health and the community, the patient and treatment, and social and cultural theory in health and illness. (Spring—evening)
- 243 Seminar: Industrial Sociology (3)** Brown
Analysis of problems of the organization of work in industry, government, business; problems of decision making, recruitment, allocation of author-

ity, informal organization, and inter-organizational relations. (Not offered 1968-69)

244 Seminar: American Class Structure (3) Stephens

Analysis of the class structure of American society in continuity and change. Critical review of theories of class, of the methodology of class, and of research reporting social and psychological correlates of class. (Fall—evening)

248 Comparative Analysis of Complex Organizations (3) Harris

Analysis of selected complex organizational types under various cultural, economic, and political conditions; relation of these to goals, structure, and functioning of the organizations. Organization topics alternate each semester: the military organization, the university organization, the industrial corporation. (Spring—evening)

250 Seminar: Science and Society (3) Kaplan

Analysis of sociocultural and political factors influencing and affecting the development and structure of science. Development of national science policies; relationship of universities, government, and science in the context of society. (Spring—evening)

***259 Law and Criminology I: Search for the Causes of Criminal Behavior (3) Courtless**

Role which criminological knowledge of crime causation may play in assisting lawyers to appraise the effectiveness of various alternative social and legal devices in controlling deviant behavior. The search for factors related to criminal behavior will be developed historically, with emphasis on current causal theories developed by various disciplines. Model as well as operational penal codes, sentencing and probation practices, and specialized facilities will be analyzed in terms of their relationship to such causal theories. (Fall—evening)

†260 Interdisciplinary Seminar on the Juvenile Court (3) Ferster

Sociological, psychological, and psychiatric views on prevention, diagnosis, and treatment; analysis of statutes, court rules, and reported cases pertaining to delinquency, dependency, custody and child abuse; emphasis on the role of the lawyer in this court. (Spring—evening)

‡261 Law and Criminology II: Society's Responses to the Criminal Offender (3) Courtless

Study of the development and current use of society's three major approaches to the handling of offenders: punitive, mechanical, and correctional. Emphasis on society's changing responses to criminal and delinquent behavior, and research findings concerning effectiveness of these responses. Analysis of treatment strategies to facilitate communication between members of the legal profession and behavior scientists charged with effectuating these strategies. (Spring—evening)

* Same as Law 475 (2). Graduate students registering for Sociology 259 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.
 † Same as Law 487 (2). Graduate students registering for Sociology 260 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.
 ‡ Same as Law 476 (2). Graduate students registering for Sociology 261 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

370 COURSES OF INSTRUCTION

295 Research (arr.)

Staff

May be repeated once for credit. (Fall and spring—as arranged; summer 1968)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged; summer 1968)

FOURTH GROUP

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Spanish

See "Romance Languages and Literatures."

Special Education*

Professor Perry Botwin (Chairman)

Professorial Lecturers E.J. Sheridan, W.O. Weigert

Associate Professor Bertice Cornish

Assistant Professors M.G. Van Dyke, R.W. Prouty, R.S. Cottrell, Jr., Margaret Moss

Instructors Kayte Fearn, Judith Leitner, Wretha Petersen

Special Lecturer G.M. Fenichel

Bachelor of Arts in Education with (1) a major in secondary education combined with a minor teaching field in Special Education and (2) a major in elementary education with an area of specialization in Special Education.—See pages 92-96, 104, 105-6.

Master of Arts in Education with a field in Special Education.—See pages 107-10.

Education Specialist.—See pages 110-11.

Doctor of Education.—See pages 111-14.

THIRD GROUP

201 Education of Exceptional Children (3)

Botwin

For prospective teachers. Educational modifications necessary to accommodate children with mental, physical, social, and emotional deviations in a school program. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education. (Fall—evening; summer 1968)

* Staff of Instruction for the academic year 1967-68.

- 202 Nature and Needs I: the Mentally Retarded (3)** Fearn
Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation; psychological and sociological implications. Principles of learning with respect to teaching retarded children. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education. (Fall—evening; summer 1968)
- 203 Teaching Mentally Retarded Children (3)** Fearn
Educational methods and curricula developed for the mentally retarded from nursery school through high school. Organization and planning of instructional activities; selection and preparation of materials. Prerequisite: Special Education 201 and 202, or permission of instructor. (Fall—evening; summer 1968)
- 204 Nature and Needs IV: the Culturally Disadvantaged (3)** Prouty
Environmental factors within our society which disadvantage children's capabilities to achieve school and life success. Early experiential deprivation, home and neighborhood values and expectancies, and self-concept development. Admission by permission of instructor. (Fall—evening)
- 205 Teaching Disadvantaged Children (3)** Fearn, Leitner
Selection and utilization of effective teaching methods and materials for compensatory and remedial education of disadvantaged children. To be taken concurrently with Special Education 206. (Fall—day)
- 206 Tutorial Internship: Disadvantaged Children (3)** Prouty, Van Dyke
Supervised internship in tutoring on a one-to-one or small-group basis with disadvantaged children. Admission by permission of instructor. To be taken concurrently with Special Education 205. (Fall—as arranged)
- 240 Nature and Needs II: the Emotionally Disturbed (3)** Van Dyke
Analysis of educational provisions for seriously disturbed children: definitions, characteristics, identification, and programs for prevention and re-education. Admission by permission of instructor. (Fall—evening; summer 1968)
- 241 Preprofessional Internship: Emotionally Disturbed Children (3)** Van Dyke, Leitner
Practicum experience early in the training sequence. Directed observation of, and interaction with, emotionally disturbed children in a field setting, with supervision of University staff. Admission by permission of instructor. (Fall—as arranged; summer 1968)
- 242 Clinical Teaching of Emotionally Disturbed Children (3)** Leitner
Lectures and discussions exploring psychoeducational techniques of teaching emotionally disturbed children and adolescents, interpersonal interaction between teachers and disturbed children. Selection of teaching methods and materials. Admission by permission of instructor. (Fall—evening)
- 260 Nature and Needs III: Crippled or Health-impaired Children (3)** Cornish
Theory of crippling and other health-impairing conditions as they affect the needs of children. Examination of curricula. Prerequisite: Special Education 201 and permission of instructor. (Fall—evening; summer 1968)

- 261 Teaching Crippled and Other Health-impaired Children in School, Home, and Hospital (3)** Cornish, Petersen
(Formerly Methods and Materials for Crippled or Health Impaired)
 Programs, methods, and materials for teaching children with orthopedic and other health-related disorders. Organization and planning of instructional activities, including home and hospital teaching. Prerequisite: Special Education 201 and 260, or permission of instructor. (Fall—evening; summer 1968)
- 262 Education of the Cerebral Palsied and Other Neurologically Impaired (3)** Cornish
 Programs, methods, and materials for teaching the cerebral palsied and other neurologically impaired, including children with minimal brain injuries or learning problems. Prerequisite: Special Education 201, 260, and 361; or permission of instructor. (Spring—evening)
- 290 Practicum in Teaching Mentally Retarded Children (6)** Prouty, Fearn
 Supervised student teaching in classrooms for mentally retarded children. Minimum of 150 clock hours required. (Spring—as arranged)
- 291 Practicum in Teaching Emotionally Disturbed Children (9)** Van Dyke, Leitner
 Supervised classroom teaching of emotionally disturbed children. Minimum of 210 clock hours required. (Spring—as arranged; summer 1968—Special Education 291 (6))
- 292 Practicum in Teaching Crippled or Health-impaired Children (6 or 9)** Cornish, Petersen
 Supervised classroom teaching of children with orthopedic, neurological, and other health-related disorders. Minimum of 210 clock hours required. (Spring—as arranged; summer 1968)
- 293 Practicum in Teaching Disadvantaged Children (6)** Prouty, Van Dyke
 Supervised classroom teaching of disadvantaged children. Minimum of 210 clock hours required. (Spring—as arranged)
- 297 Research in Special Education (3)** Staff
 Individual research under guidance of staff member. Program and conferences arranged with adviser. Admission by permission of staff. May be repeated once for credit. (Fall and spring—as arranged)
- 301 Psychology of Exceptional Children (3)** Prouty
 Psychological problems related to social, emotional, physical, and learning characteristics of handicapped children. Admission by permission of instructor. (Fall—evening; summer 1968)
- 302 Problems and Issues in Special Education (3)** Prouty
(Formerly Problems and Issues in Mental Retardation)
 Consideration of major current problems and issues in special education. Admission by permission of instructor. (Spring—evening; summer 1968)

- 303 **Administration and Supervision of Special Education (3)** Botwin
Philosophy and nature of special education; program organization, administration, and development. Surveying local level needs; program evaluation and supervision. Admission by permission of instructor. (Spring—evening; summer 1968)
- 304 **Recent Research and Trends of Exceptional Children (3)** Cottrell
(Formerly *Recent Research and Trends in Mental Retardation*)
Definition, theories, classifications; social, medical, psychological, and educational rehabilitation measures. Emphasis on current contributions of biology, sociology, and psychology to educational theory and practice. Admission by permission of instructor. (Spring—evening; summer 1968)
- 305 **Tests and Measurements for Exceptional Children (3)** Cottrell
Materials and methods of psychological, psychometric, and educational tests used in diagnosing and securing information concerning exceptional children. Admission by permission of instructor. (Fall—evening)
- 306 **Guidance and Counseling of Exceptional Children (3)** Cornish
Educational, mental, social, vocational guidance of exceptional children and youth. Role of teacher in parent counseling. Community agencies involved in postschool rehabilitation, guidance, and recreational service for exceptional children. Admission by permission of instructor. (Fall—evening; summer 1968)
- 307 **Seminar: Selected Readings in Research with Exceptional Children (3)** Moss
Student selects research topic and reviews and abstracts all pertinent research studies. Admission by permission of instructor. May be repeated once for credit. (Fall and spring—as arranged; summer 1968)
- 340 **Mental Health of Culturally Deprived and Emotionally Disturbed Children (3)** Van Dyke
Mental health problems affecting the culturally deprived child's vocational, educational, and emotional needs; teacher-child relationships; language differences in socioeconomic environments. Admission by permission of instructor. (Fall—evening; summer 1968)
- 341 **Etiology and Treatment of Emotional Disturbance (3)** Weigert
Better understanding through psychiatry of causes for and treatment of serious emotional disturbance and social maladjustment. Admission by permission of instructor. (Spring—evening)
- 342 **Seminar: Emotional Disturbance (3)** Van Dyke
Advanced design and administration of programs for emotionally disturbed children in various settings: community factors in program planning, working with multi-disciplinary team, professional ethics and responsibilities, socio-cultural considerations of deviancy and normalcy. Admission by permission of instructor. (Spring—evening)
- 343 **Psychoeducational Diagnosis of Children with Behavior or Learning Difficulties (3)** Staff
For the professional educator. Appropriate diagnostic techniques from other disciplines implemented into a theory of diagnosis within the psychoeducational framework. Includes psychoeducational teaching tech-

- niques and interpersonal strategy. **Prerequisite:** advanced graduate standing and permission of instructor. (Fall—evening)
- 344 Field Work in Psychoeducational Diagnosis (3)** Leitner
Practicum in applied educational diagnosis in the milieu of the public school. **Prerequisite:** Special Education 343 and permission of instructor. (Spring—as arranged)
- 345 Public School Consultation and Program Planning for Emotionally Disturbed Children (3)** Van Dyke
Lecture, discussion, and field work. Mental health consultation models in public schools, in-service training programs for educational personnel, and special programming for behaviorally disordered children. **Prerequisite:** Special Education 344 and permission of instructor. (Spring—as arranged)
- 346 College Teaching of Education of Emotionally Disturbed Children (3)** Van Dyke
The student plans and conducts a course in the training program sequence for the education of emotionally disturbed children, under the direction of a member of the staff. **Prerequisite:** advanced graduate standing and permission of instructor. (Fall and spring—as arranged)
- 360 Medical Aspects of Exceptional Children (3)** Staff
Adaptation problems of crippled or other health-impaired children. Causes and treatment of major medical disorders. Planning child's environment to meet his special needs. **Prerequisite:** Special Education 201 and permission of instructor. (Spring—evening; summer 1968)
- 361 Neurological Aspects of Exceptional Children (3)** Fenichel
Medically oriented approach. Etiology of gross disorders of central nervous system and brain such as poliomyelitis, brain injury, aphasia, arthritis, epilepsy, spina bifida, and related conditions. **Prerequisite:** Special Education 201 and permission of instructor. (Fall—evening; summer 1968)
- 362 Advanced Seminar: Learning Disabilities (3)** Cornish
Study in depth of learning disabilities which are a result of known neurological impairment as well as those resulting from other causes or from unknown etiology. Literature will be searched, critically reviewed, and evaluated. **Prerequisite:** permission of instructor. (Spring—evening)
- 363 Diagnosis of Educational Needs of Children with Neurological Impairment and Other Learning Disabilities (3)** Petersen
Intensive study of available instruments for making educational assessments and diagnostic evaluations to determine educational levels and needs. Instruments will be field tested and evaluated for their appropriateness for diagnosis in the various areas of learning disabilities. **Prerequisite:** permission of instructor. (Fall—evening)
- 364 Curriculum Needs and Teaching Techniques for Children with Neurological Impairment and Other Learning Disabilities (3)** Petersen
Based on the work done in Special Education 363. Curriculum needs will be interpreted and ways of meeting those needs studied. An in-depth study of educational needs and the need for different materials, tech-

niques, and procedures in different situations. Search of literature, discussion, and evaluation. Prerequisite: Special Education 363, and permission of instructor. (Spring—evening)

365 Field Work in Setting Up an Educational Program for Children with Neurological Impairment and Other Learning Disabilities (3) Petersen

Practicum in a public school setting. Weekly seminars. Students may request private consultation. Prerequisite: Special Education 363, 364; and permission of instructor. (Spring—as arranged)

FOURTH GROUP

451-52 Seminar: Special Education (3-3) Staff

For doctoral candidates. Individual study based on previous study and experience to attain advanced level of competence and meet identified professional needs or field requirements. (Academic year—as arranged)

453-54 Doctoral Internship in Special Education (3-3) Staff

Supervised internship in college teaching, administration, supervision, or private agency function. Each internship individually arranged. Prerequisite: doctoral candidacy in Special Education or permission of instructor. (Academic year—as arranged)

490 Interdisciplinary Doctoral Seminar in Special Education (3) Staff

For advanced doctoral students. Consideration given to major issues of philosophy, policy, and practice in special education. Prerequisite: permission of adviser. (Spring—evening)

491 Dissertation Research (arr.) Staff

(Fall and spring—as arranged; summer 1968)

Speech and Drama*

Professors C.W. Pettit, G.F. Henigan (*Chairman*) (*Director of Forensics*), E.L. Stevens

Professorial Lecturers Zelda Fichandler, Gilbert Herer, Zelda Kosh, Edna Monsees

Associate Professors Lee Bielski, J.W. Hillis (*Acting Director of Speech and Hearing Clinic*), L.S. Bowling, Sr.

Associate Professorial Lecturer A.A. Nilles

Assistant Professors Robert Honeygosky, Joan Regnell, David Kieserman

Assistant Professorial Lecturers E.I. Shook, Ruth Cox

Instructors D.A. Gustafson, Diane Majerus, T.E. Harris, Thomas Zaucha

Lecturers Lois Richards, L.G. Loftus, Barbara Meisler

Bachelor of Arts with a major in Dramatic Art (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including twelve semester hours in basic courses in Speech and Drama, and six hours selected from English 51-52, 71-72, or 91-92.

Required: the general requirements, see pages 74-78, including the passing of a speech proficiency test early in the program; Speech and Drama 101 and 102; and

* Staff of Instruction for the academic year 1967-68.

a minimum of eighteen additional hours in theater arts and dramatic literature as approved by the adviser.

Bachelor of Arts with a major in Speech (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Speech and Drama 1, 2, 11, 32.

Required: the general requirements, see pages 74–78, including the passing of a speech proficiency test; Speech and Drama 101, 121, 126, 141; and a minimum of twelve additional hours in second-group courses in speech arts and related courses, as approved by the adviser.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Speech majors.

Bachelor of Arts with a major in Speech Pathology and Audiology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 69, including Speech and Drama 1, 2, 11, 32.

Required: the general requirements, see pages 74–78, including the passing of a speech proficiency test; Speech and Drama 101, 121, 169, 171; and a minimum of twelve additional hours in second-group courses in speech pathology and audiology, as approved by the adviser.

Master of Arts in the field of Speech Pathology and Audiology.—Prerequisite: the degree of Bachelor of Arts with a major in Speech Pathology and Audiology from this University, or equivalent.

Required: the general requirements, pages 83–87.

Master of Fine Arts in the field of Dramatic Art.—Prerequisite: the degree of Bachelor of Arts from this University, or equivalent.

Required: the general requirements, see pages 83–87, twenty-four semester hours of second- and third-group courses in drama and dramatic literature and a creative or research thesis. The program may include six to twelve hours in theater offered at the Arena Stage. For detailed information, consult the Chairman of the Department.

Master of Arts in the field of Linguistics.—See pages 287–89 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Bachelor of Arts in Education with a teaching field in Speech and Drama.—Prerequisite: the Education curriculum, pages 71–72.

Required: the Speech and Drama option and the professional courses listed on pages 104–5.

Speech and Hearing Therapy: see Speech and Hearing Clinic, page 47.

Clinical Certification: the Department of Speech and Drama offers preparation for certificates of clinical competence, issued by the American Speech and Hearing Association, in speech pathology and/or audiology. For details consult the Department.

FIRST GROUP

A American Speech for Foreign Students (3) (Formerly Speech and Drama B–C)

Bielski

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and inflection. International Phonetic Alphabet used. Recording fee, \$5. (Fall and spring—evenings)

1 Effective Speaking (3)

Staff

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2. (Fall and spring—day and evening; summer 1968)

2 Persuasive Speaking (3)

Henigan

Continuation of Speech and Drama 1, which is prerequisite, emphasis on speech composition and elementary principles of persuasion. (Fall and spring—day)

11 Voice and Diction (3)

Staff

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to study of sounds of English, standards of speech. Class instruction in problems of rate, volume, pitch, quality. Recording fee, \$4. (Fall and spring—day and evening; summer 1968)

32 Oral Reading (3)

Staff

Reading to others, theory and practice in problems of interpreting the printed page. Prerequisite: Speech and Drama 11. Recording fee, \$2. (Fall—day; spring—day and evening; summer 1968)

SECOND GROUP**101 Phonetics (3)**

Majerus

Phonetic and phonemic alphabets and their applications to student's own speech improvement and to such fields as theater, public speaking, speech correction, radio, television, and foreign languages. Prerequisite: Speech and Drama 11. Recording fee, \$4. (Fall and spring—day)

102 Oral Interpretation of Literature (3)

Theory and practice in problems of communicating meaning and emotion. Selections for study include poetry, prose, and drama. Prerequisite: Speech and Drama 32. Recording fee, \$2. (Spring—day)

121 Group Discussion and Conference Leadership (3)

Stevens

Process of thinking and problem solving in committees and small groups; methods of leading discussions and conferences. Prerequisite: 6 hours of speech or permission of instructor. (Fall and spring—day; summer 1968)

126 Public Discussion and Debate (3)

Henigan

Principles and types of public discussion and debate; practice in argumentative speaking on questions of current interest. Prerequisite: 6 hours of speech or permission of instructor. (Spring—day)

127-28 Advanced Debate Practice (1-1)

Henigan

Admission by permission of instructor, after one semester of satisfactory participation in intercollegiate debate program. May be repeated for total of 4 semester hours. (Academic year—as arranged)

133-34 Radio and TV Broadcasting (3-3)

Shook

Study of the development of radio and TV industries, station organization and management, equipment, production techniques; practice in preparation and performance of radio programs. Recording fee, \$5 a semester. (Academic year—evening)

135-36 Radio Workshop (1-1)

Loftus

Practical work in campus radio station. (Academic year—as arranged)

- 141 Public Speaking: Advanced Forms (3)** Henigan
Preparation and presentation of speeches for formal occasions with emphasis on the psychology of the audience. Prerequisite: 6 semester hours of speech. (Not offered 1968-69)
- 145 Speech Criticism (3)** Henigan
Rhetorical theory with application to criticism of representative American and British oratory. Admission by permission of instructor. (Fall—day)
- 151-52 Stagecraft (2-2)** Staff
Theories and practicum in the technical aspects of production. (Academic year—day)
- 153 Acting (3)** Kieserman
Study and practice in fundamentals of acting technique. Prerequisite: Speech and Drama 32. Laboratory fee, \$5. (Fall—day)
- 154 Play Direction (3)** Kieserman
Fundamentals of play direction. Under supervision of instructor, students prepare one-act plays for presentation. Prerequisite: Speech and Drama 153. Laboratory fee, \$5. (Spring—day)
- 155-56 Play Production Practice (1-1)** Staff
Practical work in theater. Prerequisite: Speech and Drama 151. (Academic year—as arranged)
- 157 Workshop in Producing Shakespeare (2)**
Participation as an apprentice in minor role or technical work with an Equity Company in the Shakespeare Summer Festival production in the outdoor Sylvan Theatre at the Washington Monument. Hours arranged with Company rehearsals and performances. (Summer 1968)
- 165-66 History of the Theater (3-3)** Staff
General survey: Classical, Medieval, Renaissance, later English and Continental, and Modern theater. (Academic year—evening)
- 169 Creative Dramatics (3)** Kieserman
Study of creative dramatics and its use as a learning tool. (Fall—day; summer 1968)
- 170 Children's Theater (3)** Kieserman
Theory and practice in creating and producing plays for children. (Fall—day)
- 171 Introduction to Speech Pathology and Audiology (3)**
Survey of the disorders of speech and hearing, including symptomatology, testing, causation; emphasis on problems encountered by the classroom teacher. (Fall—day; summer 1968)
- 172 Speech Pathology I (3)** Regnell
Pathologies and therapeutic procedures in articulatory and voice disorders and cleft palate. Prerequisite: Speech and Drama 171. (Spring—day)

- 173 Speech Pathology II (3)** Honeygosky
Pathologies and therapeutic procedures in stuttering and disorders of central or peripheral nervous systems. Prerequisite: Speech and Drama 172. (Fall—day)

- 176 Speech, Hearing, and Language Development (3)** Monsees
Study of normal speech and auditory function from prenatal development through the emergence of language. (Fall—evening)

- 182 Hearing Problems and Testing of Hearing (3)** Majerus
Overview of the field of audiology to include a review of sound and its properties, anatomy and physiology of auditory system, and methods and procedures of pure tone and speech audiometry, with emphasis on their application to the study of hearing disorders. Demonstration and practice with the pure tone audiometer. (Fall—day)

- 183 Clinical Procedures in Speech and Hearing (1)** Staff
Method, theory, and practice in preparation of therapeutic objectives and materials; practice and observation in speech and hearing evaluation. May be repeated for a total of 3 semester hours. Prerequisite: Speech and Drama 172 or 182. (Fall and spring—as arranged; summer 1968)

- 184 Clinical Practice in Speech and Hearing (1)** Staff
Supervised case work in speech and hearing—the University Speech and Hearing Clinic and selected off-campus facilities. May be repeated for a total of 3 semester hours. Prerequisite or concurrent registration: Speech and Drama 183. (Fall and spring—as arranged; summer 1968)

THIRD GROUP

- 251-52 Play Preparation and Presentation (arr.)** Staff
Observation and participation in theater production: elements of stagecraft and design, principles and techniques of acting, problems in directing plays. May be repeated for a total of 12 semester hours. Admission by audition or interview. (Academic year—as arranged)

- 258 Theater Management (2 to 4)** Staff
Theory and practice in the psychology of handling the public: promotion, box office and house management. Admission by interview. (Fall and spring—as arranged)

- 270 Seminar: Children's Theater (3)** Kieserman
Theoretical and practical problems of play production for child audience. (Spring—evening)

- 277 Advanced Clinical Procedures in Speech and Hearing (arr.)** Staff
(Fall and spring—as arranged; summer 1968)

- 278 Advanced Clinical Practice in Speech and Hearing (arr.)** Staff
(Fall and spring—as arranged; summer 1968)

- 279 Anatomy and Physiology of Speech and Hearing (3)** Bowling
Study of structures and pathologies of speech and hearing. Laboratory fee, \$15. (Fall—evening)

- 280 Advanced Speech Pathology (3)** Hillis
Various types of disorders of speech and language; classification, causes, and manifestations. Laboratory fee, \$7.50. (Spring—day)
- 281-82 Clinical Audiology (3-3)** Bowling
Specialized audiometric tests and procedures for the acoustically handicapped. Demonstration and practicum. Laboratory fee, \$7.50 a semester. (Academic year—evening)
- 283 Community Programs in Speech and Hearing (3)** Herer
Methods and procedures for management of hearing and speech programs; review of hearing conservation and monitoring programs and operational aspects of clinical programs designed to meet the needs of individuals with communicative disorders. Laboratory fee, \$7.50. (Fall—evening)
- 284 Experimental Phonetics (3)** Hillis
Consideration of research methodology and published research in the study of speech production and reception. Laboratory fee, \$7.50. (Spring—day)
- 285 Language and Speech of the Hearing Handicapped (3)** Monsees
Review of development of language and speech in normal children. Effects of different types and degrees of hearing impairment on language and speech acquisition. Emphasis on major language development procedures and other habilitation methods for hearing-handicapped children. (Not offered 1968-69)
- 286 Evaluation of Speech and Language Disorders (3)** Honeygosky
Techniques in examination, history taking, patient counseling, and management. Laboratory fee, \$5. (Spring—day)
- 288 Aural Rehabilitation (3)** Bowling
Systems, principles, and methodologies of auditory training and speech reading to include development of lesson plans and their application in resolving communication problems of acoustically-handicapped individuals. Laboratory fee, \$7.50. (Spring—day)
- 291 Seminar: Speech Pathology (3)** Staff
Offered in such areas as articulatory problems and delayed speech, aphasia, voice difficulties and cleft palate, stuttering, cerebral palsy, and allied disorders. May be repeated for credit. (Fall—day; summer 1968)
- 292 Seminar: Audiology (3)** Staff
Offered in such areas as theories of audition, special auditory tests, aural rehabilitation, psychoacoustics. May be repeated for credit. (Spring—evening; summer 1968)
- 294 Independent Research in Dramatic Art (arr.)** Staff
May be repeated for credit. (Fall and spring—as arranged)
- 295 Independent Research in Speech and Hearing (arr.)** Staff
May be repeated for credit. (Fall and spring—as arranged; summer 1968)
- 299-300 Thesis Research (3-3)** Staff
(Academic year—as arranged; summer 1968)

Statistics*

Professors E.H. Johnson, H.F. Bright, Solomon Kullback (*Chairman*)
Professorial Lecturers Samuel Greenhouse, Morton Kupperman, R.P. Isaacs, W.W. Wolman
Associate Professors H.W. Lilliefors, A.D. Kirsch, R.H. Shumway
Associate Professorial Lecturers Sidney Armore, Selig Starr, M.A. Schwartz
Assistant Professors R.E. Thomas, C.T. Ireland
Assistant Professorial Lecturers Fred Frishman, R.R.V. Wiederkehr
Instructors J.K. Kern, L.B. Sanderson
Lecturer Bert Levy

Bachelor of Arts or Bachelor of Science with a major in Applied Statistics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Mathematics 23; Statistics 91, 97.

Required: the general requirements, pages 74–78, including Mathematics 24; Statistics 113, 117, 118, 155, 157–58, and six additional hours of second-group Statistics courses selected with the approval of the adviser; a minimum of twenty-four semester hours including Mathematics 124, and courses in other departments approved by the adviser as contributing to a well-organized program. For further details, consult the adviser.

Bachelor of Arts or Bachelor of Science with a major in Mathematical Statistics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 69–70, including Mathematics 23; Statistics 91.

Required: the general requirements, pages 74–78, including Mathematics 24; Statistics 117, 118, 157–58, 189–90, and six additional hours of second-group Statistics courses selected with the approval of the adviser; a minimum of twenty-four semester hours, including Mathematics 124, 139, 140, and 157 (Mathematics 250 is recommended), and courses in other departments approved by the adviser as contributing to a well-organized program. For further details, consult the adviser.

Master of Arts in the field of Mathematical Statistics.—Prerequisite: a Bachelor's degree with a major in Mathematical Statistics at this University, or equivalent. If undergraduate study did not include equivalent of required courses at this University, those courses must be taken as prerequisite to graduate study.

Required: the general requirements, pages 83–87, including Statistics 201–2 or 257–58 and a thesis, Statistics 299–200. The remaining eighteen hours must be selected in consultation with the adviser.

Master of Science in the field of Applied Statistics.—Prerequisite: a Bachelor's degree with a major in Applied Statistics at this University, or equivalent. If undergraduate study did not include equivalent of required courses at this University, those courses must be taken as prerequisite to graduate study.

Required: the general requirements, pages 83–87, and a thesis, Statistics 299–300. The program consists of at least twelve semester hours of statistics, and may include appropriate other courses in an area of interest to the candidate, to be selected in consultation with the adviser.

Master of Arts in the field of Linguistics.—See pages 287–89 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy fields of study in Mathematical Statistics: Biometrics, Design of Experiments, Econometrics, Information Theory, Multivariate Analysis, Operations Analysis, Sampling, and Statistical Inference.—See pages 83–85, 87–88, for requirements for the degree.

Bachelor of Business Administration with a major in Business and Economic Statistics.—See pages 120–22, 126.

* Staff of Instruction for the academic year 1967–68.

Master of Arts in Government in the field of Business and Economic Statistics.
See pages 128-31 136.

Departmental prerequisite: one entrance unit in algebra is prerequisite to all first-group courses in Statistics.

FIRST GROUP

- *51 **Introduction to Business and Economic Statistics** (3) Staff
Lecture (2 hours), laboratory (2 hours). Elementary principles for analyzing and interpreting statistical data; characteristic values; measures of variability, sampling, time series analysis, and simple correlation. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1968)
- *52 **Mathematics of Finance** (3) Staff
Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. (Spring—day)
- *53 **Introduction to Statistics in Psychology and Education** (3) Staff
Lecture (2 hours), laboratory (2 hours). Averages, dispersion, raw and derived scores, frequency distributions, normal curve, correlation, elementary sampling, introduction to estimation and tests of hypotheses. Laboratory fee, \$9. (Fall—day; spring—day and evening; summer 1968)
- *91 **Principles of Statistical Methods** (3) Staff
Lecture (2 hours), laboratory (2 hours). Variables and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Laboratory fee, \$9. (Fall—day; spring—evening; summer 1968)
- 97 **Introduction to Computer Programming** (3) Thomas and Staff
Lecture (2 hours), laboratory (2 hours). Computer and programming concepts. High-level language programs written by students will be run on the University computer. Laboratory fee, \$20. (Fall and spring—day; summer 1968)

SECOND GROUP

- †104 **Statistics in the Behavioral Sciences and Education I** (3) Staff
Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques for research problems in behavioral sciences and education. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1968)
- 105 **Statistics in the Behavioral Sciences and Education II** (3) Kirsch
Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques for research problems. Analysis of variance, correlation techniques, chi-square applications, sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Fall—day; spring—evening)

* Statistics 51, 53, and 91 are related in their subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three. Statistics 91 is for Statistics majors, for students in engineering and in the biological and physical sciences.

† May not be taken for credit by students who have received credit for Statistics 51, 53, or 91.

106 Factor Analysis (3)

Concepts of factor analysis and their utility in various phases of research and related topics. Prerequisite: Statistics 105 or equivalent. Laboratory fee, \$9. (Not offered 1968-69)

107 Statistics for Engineers (3)

Staff

Probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, engineering applications. Prerequisite: differential and integral calculus. (Fall—evening; summer 1968)

109-10 Quality Control and Reliability Techniques (3-3)

Statistical methods and probability models for quality control and reliability applications. Prerequisite: Statistics 91 or 107. (Not offered 1968-69)

111 Business and Economic Statistics I (3)

Johnson

Statistical processes as tools in decision making in areas of economics and business. Prerequisite: Statistics 51 or permission of instructor. Fall—day and evening)

112 Business and Economic Statistics II (3)

Johnson

Case work to illustrate quantitative procedures for solution of economic and business problems. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening)

113 Computer Programming (3)

Thomas and Staff

Lecture (2 hours), laboratory (2 hours). Computer concepts beyond the introductory level; an introduction to assembly language programming. Prerequisite: Statistics 97. Laboratory fee, \$20. (Spring—day)

114 Introduction to Computer Operating Systems (3)

Thomas and Staff

Concepts of software management of computer systems. Prerequisite: Statistics 113. Laboratory fee, \$20. (Fall—as arranged)

115 Programming Languages (3)

Thomas and Staff

Concepts of programming languages, compiler techniques, nonnumeric programming. Prerequisite: Statistics 113 or permission of instructor. Laboratory fee, \$20. (As arranged)

117 Analysis of Variance (3)

Staff

Lecture (2 hours), laboratory (2 hours). Introduction to the design of experiments and analysis of variance; random block, factorial, Latin square and Graeco-Latin square designs; analysis of covariance. Prerequisite: 3 semester hours selected from Statistics 91, 104, 107. Laboratory fee, \$9. (Fall—day; spring—evening)

118 Regression Analysis (3)

Staff

(Formerly *Correlation and the Chi-square Test*)

Lecture (2 hours), laboratory (2 hours). Regression and correlation theory: simple, partial, and multiple. Prerequisite: 3 semester hours selected from Statistics 91, 104, 107. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1968)

119 Bases of Statistical Decision Making (arr.)

Staff

For students in the Navy Graduate Financial Management Program only. Introduction to techniques of decision making, with emphasis on applica-

- tions rather than theory. Includes: binomial distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference. (Summer 1968)
- 121 Design of Experiments for Behavioral Sciences and Education (3)** Kirsch
Applications of advanced experimental design to research problems in behavioral sciences and education. Prerequisite: Statistics 105 or 117 and permission of instructor. (Spring—evening)
- 122 Forecasting Principles and Techniques (3)** Johnson
Survey and appraisal of current economic forecasting techniques and indicators of business conditions. Preparation of an actual forecast. Prerequisite: Statistics 51 or equivalent. (Spring—day)
- 123 Introduction to Econometrics (3)** Johnson
Model construction and quantification of economic theory, relevant statistical processes and role of probability. Prerequisite: elementary course in economics and statistics. (Fall—day)
- 131 Contingency Table Techniques (3)** Staff
Analysis of categorical data. Tests of independence, homogeneity, and interaction in simple and complex contingency tables. Tests of goodness of fit and of Markovity. Prerequisite: Statistics 105 or 118, or permission of instructor. (Not offered 1968-69)
- 155 Introduction to Probability (3)** Staff
Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: one entrance unit in algebra. (Spring—as arranged; summer 1968)
- 157-58 Introduction to Mathematical Statistics (3-3)** Staff
Distribution theory, sampling theory, estimation, hypothesis testing, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year—day and evening)
- 161-62 Information Theory (3-3)** Kullback
Elementary development of information theory and applications to communication, coding, psychology, linguistics, etc. Prerequisite: 3 semester hours selected from Statistics 107, 155, 157, 189. (Not offered 1968-69)
- 165-66 Multivariate Techniques (3-3)** Staff
Application of multivariate statistical techniques to multidimensional research data from the behavioral, social, biological, medical, and physical sciences. Prerequisite: Statistics 117, 118, 157-58; Mathematics 124. (Not offered 1968-69)
- 183 Intermediate Statistical Laboratory (3)** Staff
Applications to advanced experimental design and other topics. Prerequisite: Statistics 121 or permission of instructor. (As arranged)
- 187 Theory of Sampling (3)** Staff
Problems of sampling and sample design. Prerequisite: Statistics 91 or equivalent. (Fall—as arranged)

188 Nonparametric Statistical Inference (3) Lilliefors

Statistical inference when the form of underlying distribution is unspecified. Prerequisite: Statistics 91 or equivalent. (Spring—as arranged)

189-90 Mathematical Probability and Applications (3-3) Staff

Combinatorial analysis, conditional probability, stochastic independence, probability distributions, random variables, laws of large numbers. Prerequisite: differential and integral calculus. (Academic year—day and evening)

195 Reading and Research in Statistics (arr.) Staff

May be repeated once for credit. (Fall and spring—as arranged)

197 Digital Computer Programming with Applications (3) Thomas

Lecture (2 hours), laboratory (2 hours). Use of digital computer in statistical and other computational work. Writing, debugging, and running programs on the digital computer in the University Computing Center. Prerequisite: Statistics 117 and 118, or Mathematics 24, or permission of instructor. Laboratory fee, \$20. (As arranged)

THIRD GROUP**201-2 Mathematical Statistics (3-3)** Ireland

Distribution theory, sampling theory, estimation, sufficient statistics, hypothesis testing, analysis of variance, multivariate normal distribution. Prerequisite: advanced calculus. (Academic year—evening)

207-8 Operations Analysis (3-3) Wolman

Basic concepts and techniques. Introduction to simulation, linear programming, game theory, queueing theory, inventory theory, and other topics. Admission by permission of instructor. (Academic year—as arranged)

217-18 Experimental Design (3-3) Ireland

Advanced theory and application of general linear hypothesis to experimental designs. Prerequisite: Statistics 157-58 or 201-2; and Mathematics 124. (Academic year—evening)

231 Contingency Table Analysis (3) Staff

A study of the theoretical bases underlying the analysis of categorical data. Prerequisite: Statistics 201-2 or 257-58. (Not offered 1968-69)

257-58 Distribution Theory (3-3) Staff

Random variables, distribution functions, moments, sequences of random variables, characteristic functions, special distributions, sampling theory, asymptotic distributions. Prerequisite: Statistics 157-58 or 201-2; and Mathematics 124, 139, 140, 157, 250. (Academic year—evening)

259-60 Advanced Mathematical Probability (3-3) Staff

Measure theory, probability spaces, random variables, probability distributions, sequences of random variables, conditioning, martingales. Prerequisite: Statistics 189-90 and Mathematics 250. (Academic year—as arranged)

263-64 Topics in Statistical Inference (3-3) Staff

Estimation, testing of statistical hypotheses, tests of significance, likelihood ratio, likelihood—odds and odds ratio, Bayesian inference and the use

of prior knowledge, decision and information theory. Prerequisite: Statistics 257-58; or Statistics 201-2 and Mathematics 124. (Academic year—evening)

265-66 Multivariate Analysis (3-3)

Staff

Tests of significance, homogeneity, independence, canonical and vector correlations, multivariate normal distribution, generalized Student's ratio, multivariate linear hypothesis and analysis of variance. Prerequisite: Statistics 257-58; or Statistics 201-2 and Mathematics 124. (Academic year—evening)

267-68 Characteristic Functions (3-3)

Staff

Fourier integrals, distribution functions, inversion formulas, limit theorems, applications to the distribution problem of statistics. Prerequisite: Statistics 189-90; and 201-2 or 257-58. (Academic year—evening)

269-70 Statistical Decision Theory (3-3)

Staff

(Formerly Statistics 269 *Sequential Analysis and Statistics* 270 *Statistical Decision Theory*)

Wald's theory of decision functions. Sequential analysis. Multi-decision problems. Existence theorems, complete class theorems, and other general decision theoretic results. Prerequisite: Statistics 189-90; and 201-2 or 257-58. (Not offered 1968-69)

271-72 Statistical Information Theory (3-3)

Kullback

Basic concepts, definitions, and formulas of information theory; their significance and general properties; inequalities of information theory and sufficiency; applications to statistical problems of discrimination and hypothesis testing. Prerequisite: Statistics 201-2 or 257-58; and 259-60. (Academic year—day)

273-74 Markov Processes (3-3)

Staff

Fundamental notions of Markov chains and processes, generating functions, recurrence, limit theorems, random walks, Poisson processes, birth and death processes, applications. Prerequisite: Statistics 189-90; and 201-2 or 257-58. (Not offered 1968-69)

***275 Econometrics I: Introduction (3)**

Peskin, Popkin

Survey of applications and introduction to statistical methods for estimating economic relationships for the economist with some mathematical facility. Prerequisite: one year of elementary statistics and Economics 203-4 and 205, or equivalent as approved by instructor. (Fall—evening)

***276 Econometrics II: Theory and Method (3)**

Hoenack

Continuation of Statistics 275; emphasis on errors in variables, confluence, nonspherical disturbances, identification, and multi-equation estimation. Prerequisite: Statistics 275. Recommended: a course in matrix theory. (Spring—evening)

279-80 Differential Games (3-3)

Isaacs

New theory that can resolve problems of conflict: military, pursuit, and evasion; maneuvering, athletics, and others. Control theory included as special case. Prerequisite: introductory course in ordinary differential equations. (Not offered 1968-69)

* Interdepartmental course offered by departments of Statistics and Economics. Students register in either department.

- 281-82 Time Series Analysis (3-3)** Staff
 Stationary and nonstationary time series, auto- and cross-correlation, power spectral analysis, multivariate normal processes, mean square estimation and regression, statistical inference, applications. Prerequisite: Statistics 189-90; and 201-2 or 257-58. (Academic year—as arranged)
- 283 Advanced Statistical Laboratory (3)** Staff
 Application of the University computer to complex statistical problems on an individual study basis. Admission by permission of instructor. May be repeated once for credit. Laboratory fee, \$20. (Fall and spring—as arranged)
- 285-86 Seminar (3-3)** Staff
 Admission by permission of instructor. (Academic year—as arranged)
- 295 Reading and Research (3)** Staff
 May be repeated once for credit. (Fall and spring—as arranged)
- 297 Seminar: Problems in Mathematical Statistics (3)** Staff
 (Summer 1968)
- 298 Seminar: Combinatorial Probability (3)**
 (Not offered 1968-69)
- 299-300 Thesis Research (3-3)** Staff
 (Academic year—as arranged; summer 1968)

FOURTH GROUP

- *378 Seminar: Topics in Econometrics (3)** Peskin
 Limited to graduate students, primarily for doctoral candidates; offered as demand requires. A research seminar covering current econometric literature. Prerequisite: Statistics 276. (As arranged)
- 398 Advanced Reading and Research (arr.)** Staff
 Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged)
- 399 Dissertation Research (arr.)** Staff
 Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1968)

Urban and Regional Planning

See "Public Administration."

Zoology

See "Biological Sciences."

* Interdepartmental course offered by departments of Statistics and Economics. Students register in either department.

FACULTY AND STAFF OF INSTRUCTION 1967-68

Columbian College of Arts and Sciences

The Graduate School of Arts and Sciences

The School of Education

The School of Government and Business
Administration

The School of Public and International Affairs

EMERITI

Cloyd Heck Marvin, *President Emeritus*

B.A. 1915, M.A. 1916, University of Southern California; M.A. 1917, Ph.D. 1919, Harvard University; LL.D. 1923, University of New Mexico; Ph.D. 1953, Nihon University, Japan; Doctor honoris causa of The George Washington University 1959

Antonio Alonso, *Professor Emeritus of Spanish*

M.A. 1922, Indiana University

Ruth Harriet Atwell, *Professor Emeritus of Physical Education for Women*

Ph.B. 1918, Denison University; M.A. in Ed. 1933, George Washington University

Gretchen Rogers Bolwell, *Professor Emeritus of German*

B.A. 1930, M.A. 1931, George Washington University; Ph.D. 1938, Johns Hopkins University

Robert Whitney Bolwell, *Professor Emeritus of American Literature*

B.A. 1916, Western Reserve University; M.A. 1917, Ph.D. 1921, Columbia University; Litt.D. 1957, George Washington University

Paul William Bowman, *Professor Emeritus of Biology*

B.A. 1924, University of Pennsylvania; M.A. 1928, George Washington University; Ph.D. 1930, University of Virginia

Elbridge Colby, *Professor Emeritus of Journalism*

B.A. 1912, M.A. 1913, Ph.D. 1922, Columbia University

Oswald Symister Colclough, *Professor Emeritus of Law; Dean of Faculties Emeritus; Emeritus Director of the Patent, Trademark, and Copyright Research Institute*

B.S. 1920, U.S. Naval Academy; LL.B. 1935, Sc.D. 1961, George Washington University; LL.D. 1946, Muhlenberg College

Norris Ingersoll Crandall, *Professor Emeritus of Art*

B.Arch. 1914, M.Arch. 1915, Cornell University

Alan Thomas Deibert, *Professor Emeritus of Romance Languages*

B.A. 1918, Gettysburg College; M.A. 1922, Harvard University

William Webster Diehl, *Professor Emeritus of Mycology*

B.A. 1914, Miami University; M.S. 1915, Iowa State University of Science and Technology; Ph.D. 1932, Harvard University

- James Harold Fox, *Professor Emeritus of Education*
B.A. 1925, M.A. 1926, University of Western Ontario, Canada; Ed.M. 1936, Ed.D. 1937, Harvard University
- Thomas Willard Holland, *Professor Emeritus of Labor Economics, in Residence*
B.A. 1923, University of Michigan; LL.B. 1934, Columbia University; Ph.D. 1939, University of Wisconsin
- Averett Howard, *Professor Emeritus of English Composition*
B.A. 1922, University of California, Berkeley; M.A. 1940, Cornell University
- Arlin Rex Johnson, *Professor Emeritus of Business Administration*
B.S. 1924, Brigham Young University; M.A. 1931, Ph.D. 1935, George Washington University
- Francis Edgar Johnston, *Professor Emeritus of Mathematics*
B.A. 1921, George Washington University; M.A. 1923, Ph.D. 1926, University of Illinois
- Elmer Louis Kayser, *Professor Emeritus of European History; Dean Emeritus of the Division of University Students*
B.A. 1917, M.A. 1918, LL.D. 1948, George Washington University; Ph.D. 1932, Columbia University
- Frances Kirkpatrick, *Professor Emeritus of Home Economics*
B.S. 1919, University of Missouri; M.A. 1929, Columbia University
- Helen Bennett Lawrence, *Professor Emeritus of Physical Education for Women*
B.S. in P.E. 1934, M.A. 1938, George Washington University
- John Russell Mason, *Librarian Emeritus; Curator of Art Emeritus*
B.A. 1923, M.A. 1925, George Washington University; M.S. in L.S. 1933, Columbia University
- Florence Marie Mears, *Professor Emeritus of Mathematics*
B.A. 1917, Goucher College; M.A. 1924, Ph.D. 1927, Cornell University
- William Henry Myers, *Professor Emeritus of Physical Education, Health, and Recreation for Men, in Residence*
B.A. 1931, Occidental College; M.A. in Ed. 1941, George Washington University
- Fred Everett Neasell, *Registrar Emeritus*
B.A. 1920, Hiram College
- Richard Norman Owens, *Professor Emeritus of Business Administration*
B.A., B.S. 1917, University of Missouri; M.A. 1922, Ph.D. 1928, University of Chicago; C.P.A. 1923, State of Illinois
- Myrna Pauline Sedgwick, *Administrative Secretary Emeritus*
B.A. 1911, Wellesley College
- Edward Henry Sehart, *Professor Emeritus of German*
B.A. 1911, Ph.D. 1915, Johns Hopkins University
- Ernest Sewall Shepard, *Professor Emeritus of English Literature*
B.A. 1925, M.A. 1927, George Washington University
- Harold Griffith Sutton, *Director of Admissions Emeritus*
B.A. 1918, Ohio State University; M.S. 1921, Columbia University
- James Henry Taylor, *Professor Emeritus of Mathematics*
B.S. 1916, University of Nebraska; M.A. 1920, Princeton University; Ph.D. 1924, University of Chicago
- Kathryn Mildred Towne, *Professor Emeritus of Home Economics*
B.S. 1923, University of Montana; M.A. 1930, Columbia University
- Frank Mark Weida, *Professor Emeritus of Statistics*
B.S. 1913, Kenyon College; Ph.D. 1923, University of Iowa
- Warren Reed West, *Professor Emeritus of Political Science*
B.A. 1918, George Washington University; Ph.D. 1922, Johns Hopkins University
- Lawson Edwin Yocum, *Professor Emeritus of Botany*
B.S. 1916, Pennsylvania State University; M.S. 1920, Ph.D. 1924, State College of Iowa
- Donnell Brooks Young, *Professor Emeritus of Zoology*
B.S. 1911, Amherst College; Ph.D. 1923, Columbia University

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- Donatella Badin Abbate, *Lecturer in Italian*
Laurea in Lingue 1961, Boconni University, Italy
- Donna Abbey, *Assistant Professor of Physical Education for Women*
B.S. 1959, Russell Sage College; M.S. 1966, Southern Connecticut State College
- Dana Abell, *Visiting Professor of Biology*
B.A. 1949, Ph.D. 1956, University of California, Berkeley
- Fred Abrams, *Associate Professor of Spanish*
B.A. 1955, Queens College, New York; M.A. 1957, Ph.D. 1960, University of Iowa
- Eugene Abravanel, *Assistant Professor of Psychology*
B.A. 1955, University of Michigan; M.A. 1960, Swarthmore College; Ph.D. 1965, University of California, Berkeley
- Leonard Ackerman, *Assistant Professorial Lecturer in Business Administration*
B.A. 1956, Rutgers, the State University; Ed.D. 1967, George Washington University
- Alice Anderson Adams, *Assistant Clinical Professor of Psychology*
B.F.A. 1948, Ph.D. 1959, University of Oklahoma
- Caroline Lander Adams, *Associate Professor of Botany*
B.A. 1925, Illinois College; M.S. 1928, University of Chicago; Ph.D. 1932, University of Wisconsin
- Elizabeth Byrne Adams, *Assistant Professor of Business Administration*
B.S. 1955, Queens College, New York; M.A. in Ed. 1957, George Washington University
- Martha Diaz De Leon Adem, *Assistant Professor of Spanish*
M.A. 1952, New York University; Doctor en Letras 1956, Universidad Nacional, Autónoma de México
- Lewis Francis Affronti, *Associate Professor of Microbiology*
B.A. 1950, M.A. 1951, State University of New York at Buffalo; Ph.D. 1958, Duke University
- Robert Wayne Albers, *Professorial Lecturer on Biochemistry of the Brain*
B.S. 1950, University of Nebraska; Ph.D. 1954, Washington University
- Frank Duane Allan, *Associate Professor of Anatomy*
B.S. 1947, M.S. 1949, University of Utah; Ph.D. 1954, Louisiana State University
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B.A. 1939, M.A. 1940, George Washington University; Ph.D. 1955, Johns Hopkins University
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B.S. 1962, M.B.A. 1965, University of Pittsburgh; D.B.A. 1967, Arizona State University
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B.S. 1956, University of Georgia; M.B.A. 1960, Tulane University of Louisiana
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B.A. 1956, Ohio Wesleyan University; M.B.A. 1957, Ohio State University; M.A. 1960, Ph.D. 1964, American University
- William Earl Amos, *Professorial Lecturer in Education*
B.S. in Ed. 1949, Arkansas State Teachers College; M.A. 1950, University of Tulsa; Ed.M. 1959, Ed.D. 1960, University of Maryland
- Ofelia Felix Anderson, *Lecturer in Spanish*
Licenciado 1948, Central University of Ecuador; M.A. 1961, Temple University
- W. French Anderson, *Professorial Lecturer in Biochemistry*
B.A. 1958, M.D. 1963, Harvard University; M.A. 1960, Cambridge University, England
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- Ronald Andrews, *Assistant Professorial Lecturer in Physics*
B.S. 1962, Ph.D. 1966, Wayne State University
- Grover LaMarr Angel, *Professor of Education*
B.A. 1929, High Point College; M.A. in Ed. 1946, Ed.D. 1952, George Washington University
- John Lawrence Angel, *Professorial Lecturer in Anatomy and Anthropology*
B.A. 1936, Ph.D. 1942, Harvard University
- Charlotte Miriam Anker, *Lecturer in Sociology*
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- Daniel Appleman, *Professorial Lecturer in Geology*
B.S. 1953, California Institute of Technology; M.A. 1954, Ph.D. 1956, Johns Hopkins University
- Edmund Minor Archer, *Studio Lecturer in Art (Painting)*
- Sidney Armore, *Associate Professorial Lecturer in Statistics*
B.A. 1937, Brooklyn College
- Philip Elwyn Arsenault, *Associate Professorial Lecturer in Education*
B.A. 1935, M.S. in Ed. 1937, Clark University; Ph.D. 1958, Princeton University
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- Joseph Baclawski, *Professorial Lecturer in International Affairs*
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- Jeffrey John Wheeler Baker, *Visiting Associate Professor of Biology*
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- Sedgeley Schmidt Bidwell, *Lecturer in Art*
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B.S. 1940, Ohio University; M.A. 1944, University of Michigan
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B.A. 1925, Western Maryland College; M.A. 1937, Ed.D. 1942, George Washington University
- Guy Black, *Associate Research Professor of Business Economics*
B.S. 1941, Harvard University; M.A. 1948, Ph.D. 1951, University of Chicago
- Ethel Joan Blanchette, *Assistant Professor of Anatomy*
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- Louis Block, *Professorial Lecturer in Health Care Administration*
B.A. 1932, Dr.P.H. 1937, University of Michigan; M.S. in P.H. 1933, Columbia University
- Joseph Blum, *Professorial Lecturer in Mathematics*
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- Julius Milton Blum, *Associate Professorial Lecturer in Russian*
B.A. 1950, Brooklyn College; M.A. 1959, American University; Ph.D. 1963, Vanderbilt University
- Joe Morris Blumberg, *Clinical Professor of Pathology*
B.S. 1930, M.D. 1933, Emory University
- Edgar Boling, Jr., *Lecturer in English*
B.A. 1953, M.A. 1955, Emory University
- Roland Richard Bonato, *Assistant Research Professor of Psychology*
B.A. 1954, Western Reserve University; M.A. 1957, Ph.D. 1961, University of Connecticut
- Robert John Bond, *Assistant Professorial Lecturer in Business Administration*
B.A. 1924, Boston College
- Margaret Kemper Bonney, *Lecturer in English*
B.A. 1936, Harvard University; Ed.M. 1963, Vassar College
- Daniel Borth, *Professorial Lecturer in Accounting*
B.S. 1927, University of Kansas; M.S. 1928, Ph.D. 1932, University of Illinois; C.P.A. 1938, State of Louisiana
- John Gordon Boswell, *Associate Professor of Education*
B.A. in Ed. 1953, M.A. in Ed. 1956, Ed.D. 1963, George Washington University
- Perry Botwin, *Professor of Special Education*
B.S. 1942, Rutgers, the State University; M.A. 1947, New York University; Ed.D. 1957, Columbia University
- Lloyd Spencer Bowling, Sr., *Associate Professor of Speech and Hearing*
B.A. 1954, M.A. 1957, Ed.D. 1964, University of Maryland

- Thomas Elliot Bowman, *Adjunct Lecturer in Biological Sciences*
B.S. 1941, Harvard University; M.A. 1948, University of California, Berkeley; Ph.D. 1954, University of California, Los Angeles
- John Joseph Boyne, *Professor of Public Administration; Director, George Washington University Program, Air University Center, Maxwell Air Force Base, Alabama*
B.A. 1947, M.A. 1948, University of Alabama; Ph.D. 1956, University of North Carolina
- Jerome Bracken, *Associate Professorial Lecturer in Business Administration*
B.S. 1956, Carnegie Institute of Technology; M.E.A. 1959, George Washington University; D.B.A. 1963, Harvard University
- Charles Bradley, *Professor of Business Economics*
B.S. in B.A. 1942, Millikin University; Ph.D. 1948, University of Illinois
- Roscoe Brady, Jr., *Professorial Lecturer on Biochemistry of the Brain*
M.D. 1947, Harvard University
- Arthur Seymour Brecher, *Assistant Professor of Biochemistry*
B.S. 1948, City College, New York; Ph.D. 1956, University of California, Los Angeles
- Gloria Godbey Brennan, *Assistant Clinical Professor of Pathology*
B.A. 1949, M.D. 1952, George Washington University
- Marcella Brenner, *Associate Professor of Education; Associate Director, M.A.T. Program in Elementary Education*
B.S. in Ed. 1934, Johns Hopkins University; M.A. 1949, American University; Ed.D. 1962, George Washington University
- Alexander Breslow, *Associate Professor of Pathology*
B.S. 1948, M.S., M.D. 1953, University of Chicago
- John Withrow Brewer, *Professor of International Law*
B.A. 1926, M.A. 1930, Ph.D. 1932, Princeton University
- Harold Frederick Bright, *Professor of Statistics; Vice President for Academic Affairs*
B.A. 1937, Lake Forest College; M.S. 1944, University of Rochester; Ph.D. 1952, University of Texas
- A.D. Britt, *Assistant Professor of Chemistry*
B.S. 1957, West Texas State University; M.A. 1961, Ph.D. 1963, Washington University
- John Caruthers Broderick, *Adjunct Professor of English*
B.A. 1948, Southwestern at Memphis; M.A. 1949, Ph.D. 1953, University of North Carolina
- Bernard Beryl Brodie, *Professorial Lecturer in Pharmacology*
B.S. 1931, McGill University, Canada; Ph.D. 1935, New York University
- Elna Riker Broffman, *Lecturer in English*
B.A. 1951, Beaver College; M.A. 1953, Columbia University
- Diana Paul Bronte, *Instructor in French*
B.A. 1960, Hendrix College
- Elizabeth Broomhead, *Associate Clinical Professor of Psychology*
B.A. 1930, Mount Holyoke College; M.A. 1932, Columbia University
- David Springer Brown, *Professor of Public Administration*
B.A. 1936, University of Maine; Ph.D. 1955, Syracuse University
- Raymond Nathan Brown, *Assistant Clinical Professor of Anatomy*
M.D. 1943, George Washington University
- Robert Ben Brown, *Associate Professorial Lecturer in Accounting*
B.S. 1932, Oregon State University
- Robert Guy Brown, *Professor of Sociology*
B.A. 1949, University of Rhode Island; M.A. 1951, Ph.D. 1960, University of North Carolina
- Stephen Jeffry Brown, *Associate Professor of English Literature*
B.A. 1950, M.A. 1954, Ph.D. 1959, Yale University; B.A. 1952, Cambridge University, England
- John Robert Buchheit, *Associate Professorial Lecturer in Biological Sciences*
B.S. 1929, Hamline University; M.S. 1932, University of Illinois

- James Leonard Buckler, *Professorial Lecturer in Accounting*
B.A. in Govt. 1944, M.A. in Govt. 1950, George Washington University
- Charles Stephen Bunker, *Lecturer in Business Administration*
B.S. in B.A. 1958, Bowling Green State University; M.B.A. 1961, Indiana University
- Elizabeth Jean Burkley, *Instructor in French*
B.F.A. 1942, Carnegie Institute of Technology; M.A. 1962, Emory University
- *James Franklin Burks, *Associate Professor of French*
B.A. 1951, M.A. 1952, University of Cincinnati; Ph.D. 1957, Indiana University
- Arthur Edward Burns, *Professor of Economics; Dean of the Graduate School of Arts and Sciences*
B.A. 1931, M.A. 1934, University of California, Berkeley; Ph.D. 1935, George Washington University
- Edward Robert Burns, *Research Instructor in Experimental Pathology*
B.A. 1961, Hartwick College; M.S. 1963, University of Maine; Ph.D. 1967, Tulane University of Louisiana
- William Wesley Burr, Jr., *Professorial Lecturer on Isotopes*
B.A. 1947, University of Nebraska; M.S. 1948, Ph.D. 1951, University of Illinois; M.D. 1960, University of Texas
- Elizabeth Burtner, *Professor of Physical Education for Women*
B.A. 1927, Hood College; M.A. 1935, Columbia University
- Martin Alexander Buzas, *Associate Professorial Lecturer in Geology*
B.A. 1958, University of Connecticut; M.S. 1960, Brown University; Ph.D. 1963, Yale University
- Paul Calabrisi, *Alumni Professor of Anatomy*
B.A. 1931, Catholic University of America; M.A. 1940, George Washington University; Ph.D. (Cantab) 1955, Cambridge University, England
- †Willard Edmund Caldwell, *Professor of Psychology*
B.A. 1940, M.A. 1941, University of Florida; Ph.D. 1946, Cornell University
- Colin MacLennan Campbell, *Associate Professorial Lecturer in Business Administration*
B.A. 1944, Norwich University; LL.B. 1950, University of Virginia; C.L.U. 1957, American College of Life Underwriters
- Grace Quinlan Campbell, *Lecturer in French*
B.A. 1944, Barnard College; Certificat Pratique de Langue Francaise 1963, Diplome d'Etudes Francaises 1965, University of Paris, France
- Robert Dale Campbell, *Professorial Lecturer in Geography*
B.A. 1938, M.A. 1940, University of Colorado; Ph.D. 1949, Clark University
- Edward Alan Careas, *Assistant Professor of Chemistry*
B.A. 1958, Dartmouth College; Ph.D. 1963, University of Rochester
- Gerald Vincent Carroll, *Professor of Geology*
B.A. 1943, Lehigh University; Ph.D. 1952, Yale University
- Thomas Frank Carroll, *Visiting Professor of Economics*
B.A. 1942, Western Reserve University; M.S. 1947, Ph.D. 1950, Cornell University
- Wesley Thomas Carroll, *Professor of Education*
B.S. 1933, Iowa State University of Science and Technology; M.A. 1940, Ph.D. 1952, University of Nebraska
- Marie Mullaney Cassidy, *Assistant Professor of Physiology*
B.S. (General) 1957, B.S. (Special) 1958, M.S. 1959, Ph.D. 1962, National University of Ireland
- Henry Marcellus Cathey, *Associate Professorial Lecturer on Plant Physiology*
B.S. 1950, North Carolina State University at Raleigh; M.S. 1952, Ph.D. 1955, Cornell University
- Joan Patricia Caton, *Instructor in English*
B.A. 1961, Marquette University; M.A. 1963, Northwestern University

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† On sabbatical leave spring semester 1968.

- George Chacko, *Assistant Professorial Lecturer in Political Science*
M.A. 1950, University of Madras, India; B.Com. 1952, University of Calcutta, India; Ph.D. 1959, New School for Social Research
- William Weymouth Chase, *Professorial Lecturer in Education*
B.A. 1948, M.A. 1949, Colorado State College; Ed.D. 1956, Indiana University
- George Cheely, *Assistant Professorial Lecturer in Journalism*
B.S. 1952, University of Maryland
- Ping-feng Chi, *Assistant Professorial Lecturer in Chinese*
B.A. 1958, Taiwan Normal University; M.A. 1964, National Cheng-chi University, China
- James Robert Child, *Assistant Professorial Lecturer in Russian*
B.A. 1949, Princeton University; M.A. 1950, University of Pennsylvania
- Tushar Kumar Chowdhury, *Assistant Professor of Physiology*
B.S. 1956, University of Calcutta, India; M.S. 1961, University of Montana; Ph.D. 1965, State University of New York at Buffalo
- John Bert Christensen, *Associate Professor of Anatomy*
B.A. 1954, Brigham Young University; M.S. 1955, Ph.D. 1958, University of Oklahoma
- Yang-Ming Chu, *Assistant Research Professor of Microbiology*
B.S. 1959, University of Washington; M.S. 1964, Ph.D. 1967, George Washington University
- Anthony Chi-Wu Chung, *Special Lecturer on Radioisotopes*
B.S. 1949, M.S. 1950, Ph.D. 1958, University of Maryland
- Lloyd Eugene Church, *Associate Research Professor of Anatomy*
B.A. 1942, West Virginia University; D.D.S. 1944, University of Maryland; M.S. 1951, Ph.D. 1959, George Washington University
- Ira Hubert Cisin, *Professor of Sociology*
B.S. 1939, New York University; M.A. 1951, Ph.D. 1957, American University
- Astere Evarist Claeysens, Jr., *Associate Professor of English*
B.A. 1948, University of Illinois; M.A. 1952, Columbia University
- Jeanette Gayle Clapp, *Assistant Professor of Physical Education for Women*
B.S. 1959, East Carolina University; M.S. 1961, Ohio University
- Harrison Clark, *Assistant Professorial Lecturer in English*
B.A. 1942, M.A. 1956, Catholic University of America
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B.S. in E.E. 1953, M.S. 1957, Purdue University
- Ronald Grey Clark, *Assistant Professorial Lecturer in Anatomy*
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- Carl William Clewlow, *Professorial Lecturer in Business Administration*
B.A. in Govt. 1949, M.A. in Govt. 1951, George Washington University
- Daniel Raymond Cloutier, *Associate Professor of Public Administration*
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- Mary Ann Bieter Coffland, *Assistant Professor of Romance Languages*
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- Stanley Lee Cohen, *Lecturer in Psychology*
B.A. 1963, M.A. 1966, George Washington University
- Victor Hugo Cohn, Jr., *Associate Professor of Pharmacology*
B.S. 1952, Lehigh University; M.A. 1954, Harvard University; Ph.D. 1961, George Washington University
- Charles William Cole, *Professor of American Literature; Dean of the Summer Sessions*
B.A. 1930, M.A. 1931, Ph.D. 1939, George Washington University

- Mary Susan Cole, *Lecturer in English*
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- Mary Ellen Coleman, *Professor of Education; Director, Reading Center*
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- Janet Chase Collins, *Instructor in English*
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B.A. 1943, Boston College; LL.B. 1946, Catholic University of America; LL.M. 1953, Georgetown University
- George Frederick Conner, *Assistant Professor of Business Administration*
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- Thomas Monroe Cooke, *Assistant Professorial Lecturer in Political Science*
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- John Thomas Dailey, *Research Professor of Education*
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- James Edward Daly, Jr., *Assistant Professorial Lecturer in Business Administration*
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- Margaret Ives, *Professorial Lecturer in Psychology*
B.A. 1924, Vassar College; M.A. 1929, Ph.D. 1938, University of Michigan
- David Iwamoto, *Assistant Professorial Lecturer in Education*
B.A. 1947, Walla Walla College; M.A. 1948, Columbia Union College; M.A. in Ed. 1952, Ed.D. 1963, George Washington University
- Michael John Jackson, *Assistant Professor of Physiology*
B.S. 1963, University of London, England; Ph.D. 1966, Sheffield University, England
- Gilbert Chester Jacobus, *Professorial Lecturer in Business and Public Administration*
B.S. in C.E. 1929, Rutgers, the State University; M.B.A. 1935, New York University; LL.B. 1950, Georgetown University
- Miriam Petersen Jaegerman, *Instructor in Education*
B.A. 1945, Goucher College
- William James Jaffurs, *Assistant Clinical Professor of Pathology*
B.S. 1948, Pennsylvania State University; M.D. 1952, Jefferson Medical College of Philadelphia
- *Donald Richard Janis, *Instructor in English Composition*
B.A. 1955, M.A. 1962, Brown University
- Frank Skiff Jannotta, *Assistant Professor of Pathology*
B.A. 1951, Williams College; M.D. 1955, University of Pennsylvania
- John Anderson Javens, *Lecturer in English*
B.A. 1958, Geneva College
- *Herbert Jehle, *Professor of Physics*
Dr.Ing. 1933, Institute of Technology, Berlin
- Juri Jelagin, *Assistant Professorial Lecturer in Russian*
Mus.M. 1939, Moscow State Conservatory, Soviet Union
- Martha Anne Jesnak, *Assistant Professorial Lecturer in Physical Education for Men*
B.S. 1945, University of North Carolina at Greensboro; M.S. 1948, Pennsylvania State University
- Joe Lee Jessup, *Professor of Business Administration*
B.S. in B.A. 1936, University of Alabama; M.B.A. 1941, Harvard University; LL.D. 1964, University of Chungang, Korea
- Eva Mayne Johnson, *Associate Professor of Psychology*
B.A. 1949, M.A. 1951, Ph.D. 1957, George Washington University
- Everett Herschel Johnson, *Professor of Statistics*
B.A. 1926, DePauw University; M.A. 1929, Lehigh University; Ph.D. 1942, University of Michigan
- Lent Clifton Johnson, *Special Lecturer in Pathology*
B.S. 1931, M.D. 1935, University of Chicago
- Nancy Diers Johnson, *Instructor in Physical Education for Women*
B.S. 1955, University of Minnesota; M.A. 1966, University of Iowa

* On leave in absence spring semester 1968.

- Shirley Alma Johnson, *Associate Professor of Physiology*
B.A. 1945, Ph.D. 1949, University of Toronto, Canada
- Thomas Nick Johnson, *Associate Professor of Anatomy*
B.S. 1944, St. Ambrose College; M.S. 1949, Michigan State University; Ph.D. 1953, University of Michigan
- William Gordon Johnson, *Studio Lecturer in Art (Ceramics)*
B.F.A. 1968, Alfred University
- William Reid Johnson, *Associate Professor of History*
B.A. 1951, Oberlin College; M.A. 1955, Ph.D. 1961, University of Washington
- Werner Robert Jondorf, *Assistant Research Professor of Pharmacology*
B.S. 1950, University of Wales; Ph.D. 1956, University of London, England
- Meredith Leam Jones, *Adjunct Lecturer in Biological Sciences*
B.A. 1948, M.A. 1952, Ph.D. 1956, University of California, Berkeley
- Paul Bentley Jones, *Assistant Professor of Business Administration, George Washington University Program, Air Command and Staff College, Maxwell Air Force Base, Alabama*
M.B.A. 1947, Harvard University
- Robert Gean Jones, *Professor of Religion*
B.A. 1947, Baylor University; B.D. 1950, M.A. 1957, Ph.D. 1959, Yale University
- Robert Smith Jordan, *Associate Professor of International Affairs*
B.A. 1951, University of California, Los Angeles; M.S. 1955, University of Utah; M.A. 1957, Ph.D. 1960, Princeton University; D.Phil (Oxon.) 1960, Oxford University, England
- Chester Roy Julian, *Lecturer in Business Administration*
B.S. in C.E. 1961, Texas A&M University; M.C.E. 1964, Catholic University of America
- Robert Konrad Kahn, *Associate Professorial Lecturer in Psychology*
B.A. 1946, University of Pennsylvania; M.A. 1953, George Washington University; Ph.D. 1957, Pennsylvania State University
- Hans Elmar Kaiser, *Assistant Professor of Anatomy*
Ph.D. 1958, University of Tuebingen, West Germany
- Eugene Paul Kalikin, *Assistant Professorial Lecturer in Russian*
M.S. 1931, University of Ljubljana, Yugoslavia; M.A. 1961, Middlebury College
- Peter Jason Kalman, *Associate Professorial Lecturer in Mathematics*
B.A. 1961, City College, New York; M.S. 1963, Ph.D. 1964, Purdue University
- Jacobus Martinus Kaper, *Associate Research Professor of Botany*
Candidaat 1951, Doctoraal 1954, Ph.D. 1957, University of Leiden, Netherlands
- Barbara Hockey Kaplan, *Associate Professorial Lecturer in Sociology*
B.A. 1942, Melbourne University, Australia
- Norman Kaplan, *Professor of Sociology*
B.A. 1947, Brooklyn College; Ph.D. 1955, Columbia University
- Kenneth Casper Kates, *Professorial Lecturer in Zoology*
B.A. 1932, Bard College; M.A. 1934, Ph.D. 1937, Duke University
- Barbara Sylvia Katz, *Lecturer in Physical Education for Women*
B.S. 1952, Brooklyn College
- Irving Katz, *Associate Professor of Mathematics*
B.S. 1956, Brooklyn College; M.A. 1958, Ohio State University; Ph.D. 1964, University of Maryland
- Leonard William Katz, *Instructor in Health Care Administration*
B.A. 1960, M.B.A. 1961, Dartmouth College
- Samuel Irving Katz, *Professorial Lecturer in Economics*
B.A. 1940, M.A. 1942, George Washington University; M.P.A. 1948, Harvard University
- Erie Galen Kauffman, *Adjunct Professor of Geology*
B.S. 1955, M.S. 1956, Ph.D. 1961, University of Michigan
- Robert Adolph Kaye, *Professorial Lecturer in Business Administration*
B.A. in Govt. 1948, M.A. in Govt. 1950, D.B.A. 1961, George Washington University

- Joan Frances Keefe, *Lecturer in French*
B.A. 1962, Smith College; M.A. 1965, Georgetown University
- John Whitefield Kendrick, *Professor of Economics*
B.A. 1937, M.A. 1939, University of North Carolina; Ph.D. 1955, George Washington University
- Richard Alec Kenney, *Visiting Professor of Physiology*
B.S. 1945, Ph.D. 1947, University of Birmingham, England
- *Robert Wayne Kenny, *Associate Professor of History*
B.J. 1953, University of Texas; M.A. 1957, University of Minnesota; Ph.D. 1963, University of Chicago
- Stephen Gabriel Kent, *Assistant Professor of Pathology*
B.A. 1956, M.D. 1960, Western Reserve University
- Hewitt Kenyon, *Professor of Mathematics*
B.S. 1942, Ph.D. 1954, University of California, Berkeley
- Jackson Kelley Kern, *Instructor in Statistics*
B.A. 1938, Fairmont State College; M.B.A. 1954, Columbia University
- Norayr Krikor Khatcheressian, *Assistant Professor of Physics*
B.A. 1960, M.A. 1963, George Washington University; Ph.D. 1966, University of Virginia
- Porter Martin Kier, *Associate Professorial Lecturer in Geology*
Ph.D. (Cantab.) 1954, Cambridge University, England
- David Keiserman, *Assistant Professor of Drama*
B.A. 1958, New Jersey State College, Montclair; M.A. 1964, University of Illinois
- Margaret Ann Kiley, *Assistant Professor of Education*
B.S. in Ed. 1951, State University of New York at Buffalo; M.A. in Ed. 1953, Ed.D. 1965, George Washington University
- Kwang Suh Kim, *Associate Research Professor of Pharmacology*
M.D. 1947, Seoul National University, Korea; M.S. 1949, Ph.D. 1952, University of Illinois
- James Cecil King, *Professor of German*
B.A. 1949, M.A. 1950, Ph.D. 1954, George Washington University
- Virginia Randolph Kirkbride, *Associate Professor of Educational Psychology*
B.A. 1941, M.A. 1942, University of Nebraska; Ed.D. 1959, George Washington University
- Arthur David Kirsch, *Associate Professor of Statistics*
B.A. 1955, George Washington University; M.S. 1956, Ph.D. 1957, Purdue University
- Donald Chenoweth Kline, *Professor of Art*
B.Arch. 1927, George Washington University; M.F.A. 1951, Catholic University of America
- Philip Klubes, *Assistant Research Professor of Pharmacology*
B.S. 1956, Queens College, New York; M.S. 1959, Ph.D. 1962, University of Minnesota
- Jack Louis Knetsch, *Professor of Economics*
B.S. 1955, M.S. 1956, Michigan State University; M.P.A. 1959, Ph.D. 1963, Harvard University
- George Martin Koehl, *Professor of Physics; Associate Dean of Columbian College of Arts and Sciences*
B.A. 1931, University of North Carolina; M.A. 1933, George Washington University
- Jane Philbrick Kofler, *Lecturer in Art*
B.A. 1932, Wellesley College; B.F.A. 1936, Schools of the Art Institute of Chicago
- Maurice Kogon, *Assistant Professorial Lecturer in Business Administration*
B.A. in Govt. 1959, M.A. in Govt. 1960, George Washington University
- Stephen Joseph Korcheck, *Instructor in Physical Education for Men*
B.S. in P.E. 1954, M.A. in Ed. 1966, George Washington University
- Louis Sampson Kornicker, *Adjunct Lecturer in Biological Sciences*
B.S. 1941, B.S. 1942, University of Alabama; M.A. 1954, Ph.D. 1957, Columbia University
- Zelda Horner Kosh, *Professorial Lecturer in Speech*
B.A. 1933, Adelphi University; M.A. 1934, Columbia University

* On sabbatical leave fall semester 1967-68.

- Tom Kouzes, *Professorial Lecturer in Business Administration*
B.A. in Govt. 1949, M.A. in Govt. 1952, George Washington University
- *Wolfgang Herbert Kraus, *Professor of Political Science*
Dr.Jur. 1929, University of Frankfurt, Germany; S.J.D. 1931, Harvard University
- Lucie Muller Kressley, *Lecturer in German*
Ph.D. 1949, Philipps University, Germany
- Ruth Marilyn Krulfeld, *Assistant Professor of Anthropology*
B.A. 1956, Brandeis University
- Richard John Kubalak, *Assistant Professorial Lecturer in Education*
B.S. in Ed. 1951, State University of New York at Buffalo; M.A. 1953, Columbia University
- Solomon Kullback, *Professor of Statistics*
B.S. 1927, City College, New York; M.A. 1929, Columbia University; Ph.D. 1934, George Washington University
- Morton Kupperman, *Professorial Lecturer in Statistics*
B.S. 1938, City College, New York; M.A. 1950, Ph.D. 1957, George Washington University
- Frederick Charles Kurtz, *Associate Professor of Accounting*
B.S. in Com. 1948, University of Virginia; M.B.A. 1949, University of Pennsylvania; C.P.A. 1952, State of Maryland
- Peter Wilhelm Lampert, *Clinical Instructor in Pathology*
M.D. 1955, University of Frankfurt, Germany
- Marshall Edwin Landay, *Assistant Professor of Epidemiology and Environmental Health*
B.S. 1949, University of Pittsburgh; M.S. 1961, West Virginia University; Ph.D. 1965, Duke University
- Harry Hill Landon, Jr., *Associate Professorial Lecturer in Physics*
B.S. 1944, M.S. 1948, Case Institute of Technology; Ph.D. 1950, Yale University
- Macreay John Landy, *Assistant Professor of Biology*
B.A. 1959, Amherst College; M.S. 1967, University of Massachusetts
- John Carl Lang, *Professorial Lecturer in Education*
B.A. 1936, North Dakota State Teachers College, Valley City; M.A. 1949, Northwestern University; M.A. in Ed. 1949, Ed.D. 1951, George Washington University
- Leroy Lester Langley, *Professorial Lecturer in Physiology*
B.A. 1938, University of California, Los Angeles; M.A. 1939, Stanford University; Ph.D. 1942, Yale University
- Leonard Laster, *Professorial Lecturer in Physiology*
B.A. 1949, M.D. 1950, Harvard University
- John Francis Latimer, *Professor of Classics; University Marshal*
B.A. 1922, Litt.D. 1964, Mississippi College; M.A. 1926, University of Chicago; Ph.D. 1929, Yale University
- Harold Lauth, *Associate Professorial Lecturer in Journalism*
B.S. 1957, University of Maryland
- Thelma Z. Lavine, *Elton Professor of Philosophy*
B.A. 1936, Radcliffe College; M.A. 1937, Ph.D. 1939, Harvard University
- Esther Christian Lawton, *Assistant Professorial Lecturer in French*
B.A. 1932, University of Rochester; M.A. 1942, George Washington University
- Pietro Lazzari, *Studio Lecturer in Art (Painting)*
- Francis-Paul LeBeau, *Lecturer in French*
B.A. 1963, St. Francis College, Maine; M.A. 1965, Brown University
- Hugh Linus LeBlanc, *Professor of Political Science; Director, Programs in Public Affairs*
B.A. 1948, Louisiana State University; M.A. 1950, University of Tennessee; Ph.D. 1958, University of Chicago

* On leave of absence fall semester 1967-68.

- Jack Lefkowitz, *Studio Lecturer in Art (Design)*
Diploma 1956, Cooper Union for the Advancement of Science and Art
- Marvin Seymour Legator, *Associate Professorial Lecturer in Anatomy*
B.A., M.S. 1948, Ph.D. 1951, University of Illinois
- Wolfram Karl Legner, *Professor of German*
B.A. 1923, Harvard University; M.A. 1932, Ph.D. 1936, University of Pennsylvania
- Laurence Pereira Leite, *Professor of Art*
M.A. 1956, Ph.D. 1966, Johns Hopkins University
- Judith Rubenstein Leitner, *Instructor in Special Education*
B.A. 1960, Queens College, New York; M.A. in Ed. 1966, George Washington University
- Charles Ulysses Letourneau, *Professorial Lecturer in Health Care Administration*
B.A. 1932, Loyola University, Canada; M.D. 1937, B.C.L. 1948, McGill University, Canada;
M.S. in H.A. 1951, Northwestern University
- Max Levitan, *Associate Professorial Lecturer in Anatomy*
B.A. 1944, University of Chicago; M.A. 1946, University of Michigan; Ph.D. 1949, Columbia University
- Sar Levitan, *Research Professor of Economics*
B.S.S. 1937, City College, New York; M.A. 1939, Ph.D. 1949, Columbia University
- Bernard Isaac Levy, *Professor of Psychology*
B.A. 1948, New York University; Ph.D. 1952, University of Rochester
- Bert Levy, *Lecturer in Statistics*
B.S. 1952, D.C. Teachers College
- Joseph Benjamin Levy, *Professor of Chemistry*
B.S. 1943, University of New Hampshire; M.S. 1945, Ph.D. 1948, Harvard University
- Edwin Joseph Baughman Lewis, *Professor of Accounting; Assistant Dean for Special Projects in the School of Government and Business Administration*
B.A. 1938, University of Western Ontario, Canada; M.B.A. 1939, Northwestern University
- Ralph Kepler Lewis, *Assistant Professor of Anthropology*
B.A. 1934, Southwest Missouri State College; M.A. 1939, University of Southern California
- William Lewis, *Associate Professorial Lecturer in Political Science*
B.A. 1951, M.A. 1953, George Washington University; Ph.D. 1960, American University
- Yvonne Barber Libonati, *Studio Lecturer in Art (Photography)*
B.A. 1964, College of New Rochelle
- Hubert Whitman Lilliefors, *Associate Professor of Statistics*
B.A. 1952, Ph.D. 1964, George Washington University; M.A. 1953, Michigan State University
- Carl Arne Linden, *Assistant Professorial Lecturer in Political Science*
B.A. 1951, Syracuse University; M.A. 1956, Harvard University; Ph.D. 1966, George Washington University
- Roy Charles Lindholm, *Assistant Professor of Geology*
B.S. 1959, University of Michigan; M.A. 1963, University of Texas; Ph.D. 1967, Johns Hopkins University
- Donald Linkowski, *Assistant Professor of Education*
B.A. 1961, M.S. 1963, State University of New York at Buffalo
- Calvin Darlington Linton, *Professor of English Literature; Dean of Columbian College of Arts and Sciences*
B.A. 1935, George Washington University; M.A. 1939, Ph.D. 1940, Johns Hopkins University
- *Gordon Leslie Lippitt, *Professor of Behavioral Sciences*
B.S. 1942, Springfield College; B.D. 1946, Yale University; M.A. 1947, University of Nebraska; Ph.D. 1959, American University
- Arthur Ludwig Litke, *Professorial Lecturer in Accounting*
B.S. 1944, Trinity College, Connecticut; M.B.A. 1947, University of Pennsylvania

* On sabbatical leave 1967-68.

- Thomas Phillip George Liverman, *Professor of Mathematics*
B.A. 1941, University of Montpellier, France; M.A. 1948, Ph.D. 1956, University of Pennsylvania
- William Grim Locke, *Lecturer in Business Administration*
B.S. 1948, U.S. Military Academy; M.B.A. 1964, Harvard University
- Leo Gerard Loftus, *Lecturer in Speech*
B.A. 1951, Indiana University
- Kurt London, *Professor of International Affairs; Director, Institute for Sino-Soviet Studies*
Ph.D. 1923, University of Würzburg, Germany
- Nicholas Long, *Associate Professorial Lecturer in Education (Educational Psychology)*
B.A. 1952, Wayne State University; M.A. 1954, Ph.D. 1956, University of Michigan
- William Francis Edward Long, *Assistant Professor of Economics; Assistant Dean of the Graduate School of Arts and Sciences*
B.A. 1946, M.A. 1947, Ph.D. 1967, George Washington University
- Clifford Longest, *Associate Professorial Lecturer in Business Administration*
B.S. 1959, University of Maryland; M.A. 1963, George Washington University
- John Carl Lowe, *Assistant Professor of Geography and Regional Science*
B.A. 1958, M.A. 1960, George Washington University
- Evelyn Gabai Lynch, *Lecturer in English*
B.A. 1958, M.A. 1966, University of Michigan
- Donald Kenneth MacCallum, *Assistant Professorial Lecturer in Anatomy*
B.A. 1961, Pomona College; M.S. 1964, Ph.D. 1966, University of Southern California
- William Allan MacDonald, *Professor of Art and Archeology*
B.A. 1940, Oberlin College; M.A. 1942, Ph.D. 1943, Johns Hopkins University
- Bela Maday, *Professorial Lecturer in International Affairs*
Ph.D. 1937, Pazmany University, Hungary
- Eugene Ross Magruder, *Associate Professor of Business Administration*
B.B.A. 1950, M.B.A. 1951, University of Texas; Ph.D. 1959, Ohio State University
- Mary Diane Majerus, *Instructor in Speech*
B.A. 1963, M.A. 1965, University of Iowa
- William Everett Maloney, *Associate Professorial Lecturer in Geology*
B.S. 1950, M.S. 1951, George Washington University
- Harold George Mandel, *Professor of Pharmacology*
B.S. 1944, Ph.D. 1949, Yale University
- Garth Leroy Mangum, *Research Professor of Economics*
B.S. 1956, Brigham Young University; M.P.A. 1958, Ph.D. 1960, Harvard University
- Forrester Maphis, *Lecturer in French*
B.A. 1950, Dartmouth College; M.A. 1955, LL.B. 1957, Georgetown University
- Joseph Bernard Margolin, *Associate Professorial Lecturer in Psychology*
B.A. 1942, Brooklyn College; M.A. 1947, George Washington University; Ph.D. 1954, New York University
- Anthony Marinaccio, *Professorial Lecturer in Education*
M.A. 1939, Ohio State University; Ph.D. 1949, Yale University
- John Anthony Marlin, *Assistant Professorial Lecturer in Business Administration*
B.A. 1962, Harvard University; B.A., M.A. 1964, Oxford University, England
- William Henry Marlow, *Professorial Lecturer in Mathematics*
B.S. 1947, St. Ambrose College; M.S. 1948, Ph.D. 1951, University of Iowa
- William Laverne Marsh, *Associate Professor of Pathology*
B.S. 1942, Purdue University; M.D. 1946, State University of New York at Buffalo
- Vernon Edward Martens, *Associate Clinical Professor of Pathology*
B.S. 1935, M.D. 1937, St. Louis University

- Otto Barnhart Martinson, Jr., *Assistant Professorial Lecturer in Accounting*
B.A. 1960, M.B.A. 1962, George Washington University; C.P.A. 1961, State of Maryland
- David Hill Massie, *Lecturer in Geology*
- Anthony James Mastro, *Associate Professor of Accounting*
B.S. 1951, M.B.A. 1953, New York University; M.A. 1963, University of Notre Dame; C.P.A. 1955, State of New Jersey
- Anthony Richard Mattos, *Lecturer in Spanish*
B.A. 1940, M.A. 1947, Stanford University
- John Patterson Mayberry, *Professorial Lecturer in Mathematics*
B.A. 1950, University of Toronto, Canada; M.A. 1954, Ph.D. 1955, Princeton University
- Paul Mazel, *Associate Professor of Pharmacology*
B.S. 1946, Medical College of Virginia; M.S. 1955, Trinity University; Ph.D. 1960, Vanderbilt University
- Guido Ettore Mazzeo, *Associate Professor of Romance Languages*
B.A. 1936, City College, New York; M.A. 1938, Ph.D. 1961, Columbia University
- Margarita Maria Mazzeo, *Lecturer in Spanish*
B.A. 1968, George Washington University
- George Edward McCandlish, *Associate Professor of American Literature*
B.A. 1936, University of Washington; Ph.D. 1962, Harvard University
- John Francis McCarthy, Jr., *Associate Professor of Business Administration*
B.A. 1936, Duquesne University; M.L. 1955, University of Pittsburgh
- Muriel Hope McClanahan, *Associate Professor of English Composition*
B.A. 1935, Colorado College; M.A. 1937, Ph.D. 1940, University of Pittsburgh
- William Agnew McClelland, *Professorial Lecturer in Psychology*
B.A. 1941, Brown University; M.A. 1946, Ph.D. 1948, University of Minnesota
- Kenneth Frederick McClure, *Professorial Lecturer on Commercial Law*
B.S. 1931, M.S. 1932, Wichita State University; LL.B. 1941, University of Maryland
- William Edward McConville, *Assistant Professorial Lecturer in Public Administration*
B.A. 1958, Michigan State University; M.A. 1963, George Washington University
- Shirley Dickinson McCune, *Assistant Professorial Lecturer in Education*
B.S. 1957, Colorado State College; M.S.W. 1960, University of Denver; D.S.W. 1966, Catholic University of America
- Carl Oscar McDaniels, *Associate Professor of Education*
B.A. 1951, Bridgewater College; Ed.M. 1957, Ed.D. 1964, University of Virginia
- *James Kenneth McDonald, *Assistant Professor of International Affairs, George Washington University Program, Naval War College Center, Newport, Rhode Island*
B.A. 1954, Yale University; B.Litt. 1961, Oxford University, England
- Mabel Vierling McEwan, *Assistant Professorial Lecturer in Physical Education for Women*
B.A. 1941, M.A. in Ed. 1967, George Washington University
- Edwin McGowin, *Studio Lecturer in Art*
B.S. 1961, University of Southern Mississippi; M.A. 1964, University of Alabama
- Mary Williamson McHenry, *Instructor in English Composition*
B.A. 1954, Mount Holyoke College; M.A. 1960, Columbia University
- Margaret McIntyre, *Associate Professor of Education*
B.S. in Ed. 1939, State University of New York at Buffalo, M.A. 1944, Northwestern University; A.P.C. 1963, George Washington University
- Ruth Blumenfeld McKay, *Assistant Professor of Pediatric Psychiatry and Anthropology*
B.A. 1954, Brooklyn College; M.A. 1961, Ph.D. 1965, University of Pennsylvania

* On leave of absence 1967-68.

- Marian McNabb, *Studio Lecturer in Applied Music (Piano)*
Mus.B. 1930, University of Kansas; M.S. in Mus. 1949, Union Theological Seminary
- James McPherson, *Instructor in Mathematics*
B.S. 1958, M.A. 1961, Pennsylvania State University
- Barbara Altman Meisler, *Lecturer in Speech*
B.A. 1965, M.A. 1967, George Washington University
- William Gerald Melson, *Assistant Professorial Lecturer in Geology*
B.A. 1961, Johns Hopkins University; M.A. 1963, Ph.D. 1964, Princeton University
- Malcolm Lee Meltzer, *Associate Professor of Psychology; Director, Graduate Training in Clinical Psychology*
B.A. 1951, Western Maryland College; M.A. 1954, Ph.D. 1957, Catholic University of America
- Jesse Eugene Merida, *Lecturer in Geology*
B.A. 1959, Wichita State University
- Howard Maxwell Merriman, *Professor of American Diplomatic History*
B.A. 1930, M.A. 1931, University of Cincinnati; M.A. 1932, Ph.D. 1937, Harvard University
- Walter Mertz, *Special Lecturer on Inorganic Metabolism*
M.D. 1951, University of Mainz, Germany
- Joseph Louis Métivier, Jr., *Associate Professor of Romance Languages; Assistant Dean of Columbian College of Arts and Sciences*
B.A. 1951, M.A. 1955, George Washington University
- Lothar Metzl, *Professorial Lecturer in International Affairs*
Dr.Jur. 1929, University of Vienna, Austria
- Franz Henry Michael, *Professor of International Affairs; Associate Director, Institute for Sino-Soviet Studies*
Sinological Diploma 1930, University of Berlin, Germany; Referendar 1931, Dr.Jur. 1933, University of Freiburg, Germany
- Charles Robert Midkiff, Jr., *Lecturer in Chemistry*
B.S. 1963, George Washington University
- Marija Mihajlov, *Lecturer in Russian*
B.A. 1965, University of Sarajevo, Yugoslavia
- Paul John Mika, *Associate Professor of Geography*
B.A. 1954, University of Pittsburgh; M.A. 1958, George Washington University; Ph.D. 1965, Clark University
- Eugene Paul Mikols, *Assistant Professorial Lecturer in Business Administration*
B.S. 1959, University of Illinois; M.B.A. 1960, Northwestern University
- Jack William Millar, *Vivian Gill Professor of Epidemiology and Environmental Health*
B.A. 1945, Stanford University; M.D. 1947, George Washington University; M.P.H. 1951, M.S. in Hygiene and Tropical Medicine 1952, Harvard University
- Charles Henry Miller, *Assistant Professorial Lecturer in Epidemiology and Environmental Health*
B.S., M.D. 1949, University of Nebraska; M.P.H. 1963, University of Pittsburgh
- Frank Nelson Miller, Jr., *Professor of Pathology*
B.S. 1943, M.D. 1948, George Washington University
- Mary Fetter Miller, *Assistant Professorial Lecturer in Russian*
B.A. 1943, Northwestern University; M.A. 1966, University of Michigan
- Rhoda Baynard Miller, *Instructor in French*
B.A. 1962, George Washington University
- Charles Milton, *Research Professor of Geology*
B.A. 1923, Iowa State University of Science and Technology; Ph.D. 1929, Johns Hopkins University
- Carl Ernst Minich, *Associate Professorial Lecturer in Education*
B.S. 1933, Ed.M. 1942, Ed.D. 1952, State University of New York at Buffalo

- Fredrick Louis Minn, *Assistant Professor of Chemistry*
B.A. 1937, Ph.D. 1963, University of Illinois
- James Buford Misenheimer, Jr., *Associate Professor of English Literature*
B.A. 1953, Baylor University; M.A. 1954, Southern Illinois University; Ph.D. 1964, University of Colorado
- Helen Lucille Mitchell, *Associate Professorial Lecturer in Education*
B.S. 1931, University of Illinois; M.A. 1941, New York University
- Edward Mock, *Associate Professor of Business Finance*
B.S. 1955, King's College, Pennsylvania; M.A. 1957, Marquette University; Ph.D. 1964, Ohio State University
- Oliver Moles, Jr., *Associate Professorial Lecturer in Sociology*
B.A. 1956, Ohio Wesleyan University; Ph.D. 1963, University of Michigan
- Clarence Cowan Mondale, *Associate Professor of American Literature*
B.A. 1947, Macalester College; M.A. 1954, Ph.D. 1960, University of Minnesota
- John Judson Monroe, *Assistant Professorial Lecturer in English*
B.A. 1933, Illinois College; M.A. 1938, University of Colorado
- Edna Kury Monsees, *Professorial Lecturer in Speech*
B.S. 1930, University of Missouri; M.A. 1965, Ph.D. 1967, American University
- Margaret Wheeler Montzka, *Assistant Professor of Physics*
B.A. 1929, M.A. 1931, George Washington University
- Dorothy Adele Moore, *Assistant Professor of Education*
B.A. 1954, University of Maryland; M.A. 1959, A.P.C. 1964, American University
- Richard Moore, *Assistant Professorial Lecturer in Physiology*
B.S. 1949, University of Missouri; Ph.D. 1956, University of Rochester
- Robert Hamilton Moore, *Professor of English Composition*
B.A. 1934, M.A. 1938, Indiana University; Ph.D. 1948, University of Illinois
- Arturo Morales-Carrion, *Professorial Lecturer in Political Science*
B.A. 1935, University of Puerto Rico; M.A. 1936, University of Texas; Ph.D. 1950, Columbia University
- John Andrew Morgan, Jr., *Assistant Professor of Political Science*
B.A. 1957, Stetson University; M.A. 1959, Ph.D. 1963, Duke University
- Glenn Ellis Morris, *Assistant Professorial Lecturer in Health Care Administration*
B.S. 1933, M.A. 1938, University of Illinois; M.S. in H.A. 1956, Northwestern University
- Mabel Elizabeth Inco Morris, *Assistant Professorial Lecturer in Mathematics*
B.A. 1923, Evansville College; M.A. 1928, University of Chicago
- Edith Elizabeth Mortensen, *Professor of Zoology*
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Mus.B. 1951, Mus.M. 1962, Catholic University of America
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- William P. Weiss, *Assistant Professor of Pharmacology*
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COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bachelor of Arts (B.A.), Bachelor of Science (B.S.), and Bachelor of Science in Medical Technology (B.S. in Med.Tech.)

GRADUATE SCHOOL OF ARTS AND SCIENCES: Master of Arts (M.A.), Master of Fine Arts (M.F.A.), Master of Music (Mus.M.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER: Juris Doctor (J.D.), Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), Master of Comparative Law (American Practice) (M.Comp.L.(Am.Prac.)), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Bachelor of Science (Civil Engineering) (B.S. (C.E.)), Bachelor of Science (Electrical Engineering) (B.S. (E.E.)), Bachelor of Science (Measurement Science) (B.S. (Meas.S.)), Bachelor of Science (Mechanical Engineering) (B.S. (M.E.)), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

SCHOOL OF EDUCATION: Bachelor of Arts in Education (B.A. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching (M.A.T.), Master of Arts in Education (M.A. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION: Bachelor of Business Administration (B.B.A.), Master of Arts in Government (M.A. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Master of Science in Administration (M.S. in Adm.), Master of Science in Business Administration (M.S. in B.A.), Master of Urban and Regional Planning (M. of Urb. and Reg.Plan.), Graduate Certificate in Health Care Administration (Grad.Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS: Bachelor of Arts (B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), Master of Arts (M.A.), and Master of Science in International Affairs (M.S. in I.A.)

COLLEGE OF GENERAL STUDIES: Bachelor of Science in General Studies (B.S. in Gen.Std.), Bachelor of Science in Geodetic and Cartographic Science (B.S. in Geod. and Cart.Sc.), and Bachelor of Science in Oceanography (B.S. in Ocea.)

THE GEORGE WASHINGTON UNIVERSITY

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THE NATIONAL LAW CENTER, 1865

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCES, 1882

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THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION, 1928

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, 1928

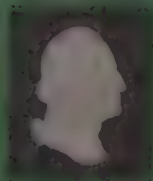
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THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE SUMMER SESSIONS, 1975

THE UNIVERSITY HOSPITAL, 1895

THE GEORGE WASHINGTON UNIVERSITY BULLETIN



SCHOOL
OF
MEDICINE

1969-1970

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Office of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D.C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 144. Zip code is essential for mailing catalogues.

Admission

Graduate

Arts and Sciences.....Dean of The Graduate School of Arts and Sciences
Education.....Dean of The School of Education
Engineering and Applied Science.....Dean of The School of Engineering
and Applied Science

Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning
Dean of The School of Government and Business Administration
International Affairs and Public Affairs.....Dean of
The School of Public and International Affairs

Law.....Dean of The National Law Center
School of Medicine.....1331 H Street, Washington, D.C. 20005
Undergraduate.....Office of Admissions

Alumni Association.....Alumni Office
Medical Alumni Association.....1331 H Street, Washington, D.C. 20005

Financial AidStudent Financial Aid Office
Foreign Students.....Adviser to International Students
Gifts and Bequests.....Resources Program

Housing

Men.....Dean of Men
Women.....Dean of Women

Off-campus and Noncredit Courses.....Dean of The College of General Studies
Student Employment.....Student and Alumni Career Services Office

Summer Sessions.....Dean of The Summer Sessions
Transcripts of Records.....Registrar

Veterans Education.....Registrar

THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXVIII, Number 2, October 1968

Published by The University at Washington, D.C. 20006
MONTHLY: SEPTEMBER, OCTOBER, NOVEMBER, MARCH, MAY
(2 ISSUES IN DECEMBER; 4 ISSUES IN APRIL)

Second Class Postage Paid at Washington, D.C.

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

**THE SCHOOL OF MEDICINE
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WASHINGTON, D.C. 20005



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22	23	24	25	26	27	28
29	30					

DECEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

THE CALENDAR 1969-70*

1969-70 FALL SEMESTER

September 11	Registration <i>Thursday</i>
September 12-15	Orientation for first-year students <i>Friday-Monday</i>
September 15	Opening Assembly <i>Monday</i>
September 16	Classes begin <i>Tuesday</i>
November 11	Veterans Day (holiday) <i>Tuesday</i>
November 26	Thanksgiving recess begins after last class <i>Wednesday</i>
December 1	Classes resume <i>Monday</i>
December 20	Christmas recess begins after last class <i>Saturday</i>
January 5	Classes resume <i>Monday</i>
January 19-24	Examination period <i>Monday-Saturday</i>

1970 SPRING SEMESTER

January 26	Spring-semester classes begin <i>Monday</i>
February 21	Winter Convocation <i>Saturday</i>
February 23	(Holiday) <i>Monday</i>
March 26	Holiday <i>Monday</i>
March 30	Classes resume <i>Monday</i>
May 22	Last day of spring-semester classes <i>Friday</i>
May 23-29	Examination period <i>Saturday-Friday</i>
June 7	Commencement <i>Sunday</i>

*The examination schedule and semester breaks do not apply to third- and fourth-year students. See *Special Schedule*.



THE SCHOOL OF MEDICINE*

Dean of the Medical Center John Parks
Associate Deans of the Medical Center J.J. Feffer,
A.M. Griffin, F.N. Miller, Jr.

THE FACULTY

Professors J.P. Adams, P.C. Adkins, L.K. Alpert, Seymour Alpert, R.H. Barter, Brian Blades, Halla Brown, T.M. Brown, Paul Calabrisi, C.S. Coakley, L.R. Culbertson, W.R. Duryee (*Research*), J.M. Evans, J.J. Feffer, C.M. Goss (*Visiting*), A.M. Griffin, L.J. Griffith (*Visiting*), J.A. Halsted, Murdock Head, F.P. Heald, Roy Hertz, R.S. Higdon, Rudolph Hugh, R.A. Kenney (*Visiting*), C.T. Klopp, G.S. Letterman, R.S. Lourie, H.G. Mandel, J.W. McTigue, J.W. Millar, F.N. Miller, Jr., William Newman, R.S. Paine, John Parks, R.C. Parlett, A.E. Parrish, T.M. Peery, J.G. Randolph, J.E. Rankin, Mary Louise Robbins, M.J. Romansky, J.G. Sites, J.C. Smith, W.W. Stanbro, Harold Stevens, Irene Tamagna, I.R. Telford, C.S. Tidball, C.R. Treadwell, J.W. Watts, F.W. Wolff, Leon Yochelson

Clinical Professors W.A. Howard, W.S. McCune

Associate Professors L.F. Affronti, T.C. Alford, F.D. Allan, Gordon Avery, J.M. Bailey, Alexander Breslow, S.W. Bush, C.A. Caceres, Marie Cassidy, J.B. Christensen, H.W. Clark, Jr. (*Research*), J.W. Clarke (*Visiting*), V.H. Cohn, Jr., Milton Corn, J.A. Curtin, Leon Cytryn, B.S. Epstein, S.E. Fabro (*Research*), W.R. Felts, Jr., B.S. Fine, R.C. Fowler, D.H. Glew, Jr., Margaret Gutelius, G.L. Harper, C.R. Hartman, Ariel Hollinshead (*Research*), J.C. Houck, Wellington Hung, Dorothy Huntington (*Research*), M.H. Jacobson, Shirley Johnson (*Research*), T.N. Johnson, W.R. Jondorf (*Research*), Paula Kaiser, G.A. Kelser, Jr., Peter Kenmore, K.S. Kim (*Research*), N.C. Kramer, S.L. Leikin, Marie-Louise Levy, A.M. Margileth, W.L. Marsh, D.J. Massaro, Rashid Massumi, A.F. Mastellone, Paul Mazel, J.E. McClenathan, Ruth McKay, C.F. Murphy, J.P. Nasou, W.J. Nelson, A.F. North, Jr., J.B. O'Connell, J.C. Penhos (*Research*), Arthur Peschin, H.C. Pierpont, Lois Platt, Rebecca Rieger (*Research*), Patricia Russell, L.P. Scott III, C.W. Shilling, Irene Siu, B.W. Smith, N.P.D. Smyth, E.V. Soto, Elizabeth Tidball (*Research*), G.V. Vahouny, J.K. Viktora (*Research*), John Watt, Jr., Mary Watt, Don Wenger, Bernard Wortman (*Research*)

*The Faculty, Executive Faculty, Dean's Council, and committee members are for the academic year 1968-69.

The President of the University, the Vice President for Academic Affairs, the Registrar of the University, and the Director of Admissions of the University are ex officio members of the Faculty and the Executive Faculty.

Associate Clinical Professor J.J. McFarland, Jr.

Assistant Professors E.N. Albert, Alice Altstatt, J.M. Bacos, J.S. Bailey (*Research*), W.H. Barton, K.L. Becker, C.M. Berlin, Jr., Joan Blanchette, Willard Blankenship, A.S. Brecher, Juan Calatayud, T.K. Chowdhury, Yang-Ming Chu (*Research*), A.C. Chung, R.M. Coleman, Mervyn Elgart, S.A. Fagen (*Research*), G.M. Fenichel, J.D. Finkelstein, Rona Fisher (*Research*), Ronald Fishman, D.S. Friendly, Whei-Rung Fu, J.N. Goldman, A.S. Gooch, P.A. Gorman, Richard Granke, Elsa Greenberg (*Research*), L.M. Greenberg, H.M. Grigorian, G.A. Hahn (*Research*), Allan Hall, Suzanne Hammersberg, Kun-yen Huang, M.J. Jackson, C.B. Jacobson, F.S. Jannotta, B.F. Johnson (*Research*), H.E. Kaiser, S.G. Kent, Philip Klubes (*Research*), M.E. Landay, J.R. Lilly, Ann Lodge (*Research*), Emanuele Mannarino, W.B. McAvoy, G.A. Morales, Nasser Movassaghi, C.H. Oliver, Jr., M.N. Ozer, Helen Percy, F.A. Peck, L.W. Perry, J.R. Puig, Melvin Reich, H.B. Richardson, Jr., C.A. Rigg, H.L. Rudman, P.E. Shorb, Jr., T.R. Shworles, L.W. Stanton, Elizabeth Stephenson, J.A. Straw, Lovisa Tatnall (*Research*), N.T. Tsangaris, H.A. Urweider, Benny Waxman, William Whitmore, Jr., H.S. Wicker, Karl Wipplinger, G.L. Wright, Jr., Henry Yeager, Jr.

Assistant Clinical Professor J.L. Levine

Instructors R.P. Altman, L.F. Arias-Bernal, W.R. Ayers (*Research*), Ann Barnet, Mary Bazelon, Charlotte Berg, W.S. Byers, C.H. Chan, W.S. Gilbert, S.I. Granger, H.M. Hochberg (*Research*), Sharon Kempf, E.N. Kraybill, R.A. Lavine, Hildegard Manitsas, J.L. Marlow, A.M. Mondzac, Karin Nelson, D.R. Norman, Beneta Peacock, Boris Vlalukin, M.W. Werthmann, Jr., Ching-Hui Wu (*Research*)

Administrator of the University Hospital and Clinics V.F. Ludewig

THE DEAN'S COUNCIL*

P.C. Adkins, Seymour Alpert, Brian Blades, T.M. Brown, F.P. Heald, H.G. Mandel, T.M. Peery, J.E. Rankin, Harold Stevens

EXECUTIVE FACULTY

Professors J.P. Adams, Seymour Alpert, R.H. Barter, Brian Blades, T.M. Brown, Paul Calabrisi, C.S. Coakley, L.R. Culbertson, J.J. Feffer, A.M. Griffin, Murdock Head, F.P. Heald, R.S. Higdon, H.G. Mandel, J.W. McTigue, J.W. Millar, F.N. Miller, Jr., John Parks, R.C. Parlett, A.E. Parrish, T.M. Peery, J.E. Rankin, Mary Louise Robbins, M.J. Romansky, J.G. Sites, J.C. Smith, W.W. Stanbro, Harold Stevens, I.R. Telford, C.S. Tidball, C.R. Treadwell, J.W. Watts, Leon Yochelson

Clinical Professors W.A. Howard, W.S. McCune

Associate Professors B.S. Fine, G.L. Harper, B.W. Smith

Associate Clinical Professor J.J. McFarland, Jr.

Assistant Professor Mervyn Elgart

Assistant Clinical Professor J.L. Levine

Administrator of the University Hospital and Clinics V.F. Ludewig

* The Dean and Associate Deans of the Medical Center and the Administrator of the University Hospital and Clinics are ex officio members of the Dean's Council.

COMMITTEES*

COMMITTEE ON ADMISSIONS

Paul Calabrisi, *Chairman*
 L.F. Affronti, Juan Calatayud, D.H. Glew, Jr., Milton Gusack, A.M. Margileth,
 W.J. Nelson, J.E. Rankin, Irene Siu, John Watt, Jr., Beverly Oliphant (*Student Representative*)

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 B.S. Epstein, J.M. Evans, H.M. Grigorian, N.C. Kramer, P.E. Shorb, Jr., J.C. Smith, F.W. Wolff

COMMITTEE ON LIBRARY

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 T.C. Alford, F.D. Allan, Alexander Breslow, Halla Brown, Mary Louise Robins, G.V. Vahouny

COMMITTEE ON CONTINUING MEDICAL EDUCATION

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COMMITTEE ON APPOINTMENTS AND PROMOTIONS

Brian Blades, *Chairman*
 H.G. Mandel, M.J. Romansky, J.G. Sites, C.R. Treadwell

* The Dean and Associate Deans of the Medical Center and the Administrator of the University Hospital and Clinics are ex officio members of all committees.

10 SCHOOL OF MEDICINE

ADVISORY COMMITTEE ON REHABILITATION

Irene Tamagna, *Chairman*

S.W. Bush, H.W. Clark, Jr., H.L. Feffer, R.C. Fowler, John Watt, Jr.

ADVISORY COMMITTEE ON STUDENT AFFAIRS

R.S. Higdon, *Chairman*

A.S. Brecher, Milton Gusack, Paul Mazel, N.T. Tsangaris

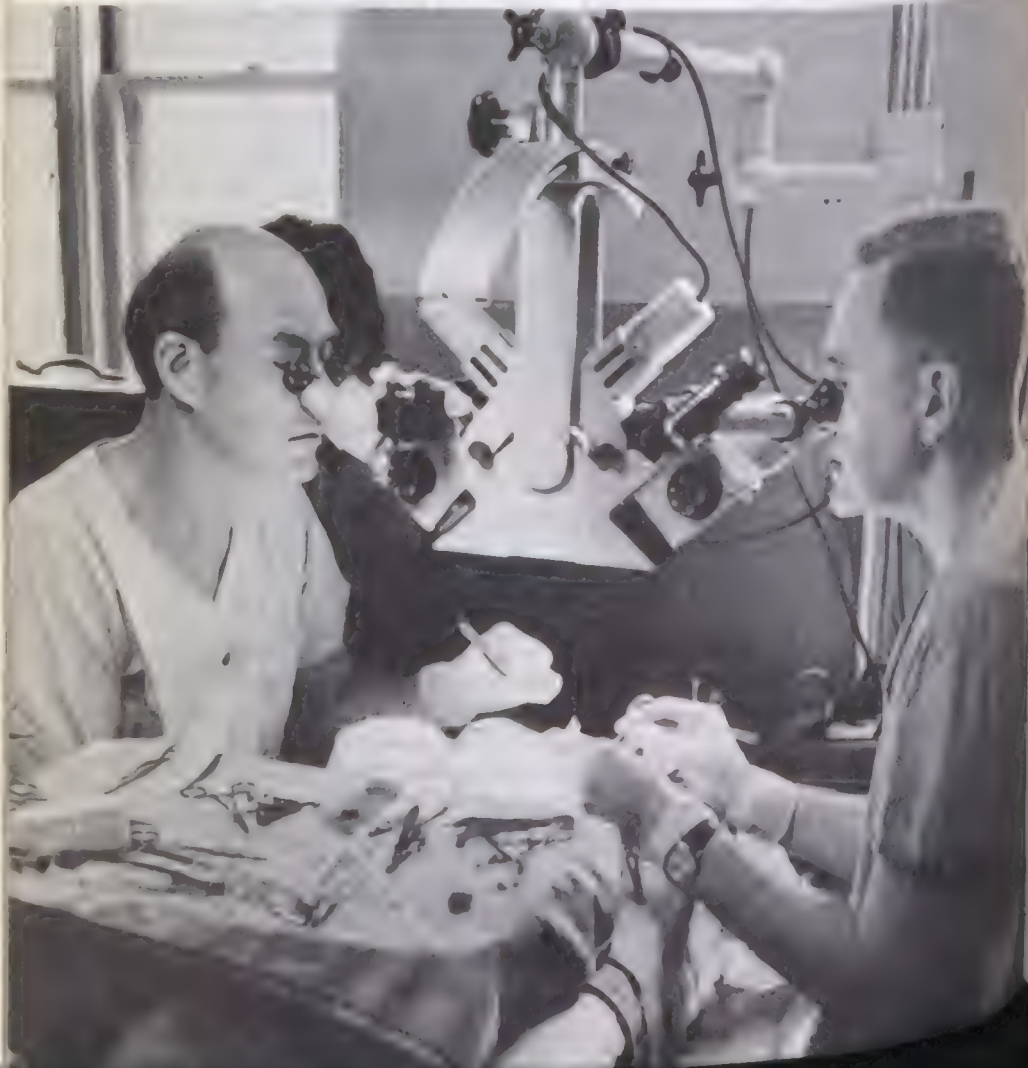
ADVISORY COMMITTEE ON TEACHING AIDS

F.D. Allan, *Chairman*

Gordon Avery, J.M. Bailey, H.C. Pierpont, W.W. Stanbro, Elizabeth Tidball

STUDENT ADVISORY COMMITTEE TO THE DEAN

J.A. Crawford, Maureen Crittenden, A.J. Eberdt, J.R. Emmett, I.G. Wong,
Student Council Representative



General Information

THE SCHOOL OF MEDICINE OF GEORGE WASHINGTON UNIVERSITY has a distinguished history that goes back more than a century. In March, 1825, the School opened with the intention of building "a medical school commensurate with the progress and demands of a rising metropolis, and the improvement of service throughout the country." The School of Medicine, the eleventh oldest in the country, has met this responsibility by providing its students with a foundation in the medical sciences upon which they have built medical careers in practice, teaching, research, or administration.

In 1844, the School took on a new dimension when Congress granted it the use of the Washington Infirmary. Thus one of the earliest general teaching hospitals in the Nation was established in Washington.

At the turn of the century the School was located at its present site—in the center of Washington—close to world-renowned library facilities, comprehensive government medical museums, and numerous federal medical research and scientific establishments.

The distinguished history of the George Washington University School of Medicine closely parallels academic advances and medical progress of the Nation. The School has contributed to both.

The George Washington University Medical Center, established in 1966, consists of the School of Medicine; the University Hospital, Clinic, and Cancer Clinic; and affiliated hospitals.

OBJECTIVES

The purpose of the School of Medicine is to prepare men and women in the art and science of medicine to meet the health needs of a growing, ever-changing society. It is the responsibility of the School to provide its students with a systematic plan of instruction in the basic medical sciences, with well-guided clinical experience, with opportunities for expression in research, and with a philosophy in keeping with the highest ethics of the profession.

To carry out its program, the School maintains a well qualified faculty and makes use of facilities which provide exceptional opportunities for research and clinical training in the Washington metropolitan area.

PLAN OF INSTRUCTION

The Faculty and Administration of the School of Medicine have developed and initiated a program of medical education through careful study of past performance, present opportunity, and future need.

Students differ widely in their interests and abilities. Each student is encouraged to maximal achievement within his own limits. This is accomplished by a balanced program of required and elective courses that permit individual scholarly development in specialized medical sciences and research.

The curriculum provides graduated instruction, beginning with the basic medical sciences and expanding to include the more complex aspects of health maintenance and care of the sick. It provides a broad basic preparation for a career in medicine.

In the first year, the schedule begins with an orientation period designed to introduce the new students to the Faculty, the upperclassmen, and the environment for their medical education.

The first semester is devoted to the study of the sciences (anatomy and biochemistry) concerned with the structure and composition of the normal human body. In the second semester of the first year, the science of normal function is further emphasized by courses in physiology. These studies of the normal provide a basis for the emphasis on health maintenance, which is a strong positive characteristic of the University's new teaching program. During the second semester the student is also introduced to the concept of disease in a course in microbiology, where the various microbial agents and their effects upon the human body are studied. Elective courses are offered in the second semester of the first year and provide an opportunity for the student to begin the development of special interests under the guidance of skilled advisers.

The basic courses of the first semester of the second year are pathology and pharmacology. In the former the student learns the nature and causes of disease as well as the alterations produced by disease in the tissues and fluids of the human body. He learns to recognize and evaluate the significance of the abnormal. Pharmacology provides an understanding of the mode of action of the various agents employed in the treatment of the sick, and emphasizes the safest and most effective means for their use. Opportunities for elective study are increased during the second year.

The second semester of the second year and the first semester of the third year are planned to acquaint the student with the principles and methods of clinical diagnosis and therapy, and to develop in him an awareness of the physician's responsibility to his patients. The basic concepts of laboratory medicine are taught in special laboratory facilities. During the second semester of the second year, three half days are available each week for electives.

The fall semester of the third year provides the student with his first responsibility for patient care. In the Continuing Care Program, each student is assigned several patients for study in depth, including an evaluation of family, home, and community as they may contribute to the illness or to recovery. This program is decentralized so that the student can become familiar with community health resources in an area near his own home. Preceptors provide close personal supervision of all aspects of the project.

In addition to the Continuing Care Program, lectures and demonstrations provide additional background in theory and principles for the clinical experiences which will follow. Of special significance is the series called "Major Clinical Situations," in which the students are presented with simulated clinical problems and participate in their solution.

During the final 16 months of the curriculum, each student has a 12-month clinical clerkship assignment in the University Hospital and Clinic and in affiliated hospitals. Patients with a wide variety of illnesses are assigned to each student for close personal study under the guidance of a faculty skilled in the various specialties of medical practice. In the course of the clerkship, the student is given increasing responsibility as he demonstrates competence and professional maturity.

During an 8-week elective period, each student has an opportunity to explore general practice, specialty practice, or areas of research which may be of help in deciding the direction of his career. Students with exceptional interests and

proven ability may be permitted to spend their elective period in other universities, including those of foreign countries, but most students will find ample opportunities in the University's own published schedule of approximately 150 different electives for upperclassmen.

CURRICULUM

A. The Basic Medical Sciences

FIRST YEAR	TERM I (16 weeks)
	TERM II (16 weeks)

ANATOMY AND BIOCHEMISTRY

PHYSIOLOGY AND MICROBIOLOGY

plus 4 semester-hour credits of electives in Anatomy and Biochemistry

(16-week vacation)

SECOND YEAR	TERM III (16 weeks)
	TERM IV (16 weeks)

PATHOLOGY AND PHARMACOLOGY

plus 4 semester-hour credits of electives in Physiology and Microbiology

B. The Intermediate Terms

PHYSICAL DIAGNOSIS, LABORATORY MEDICINE, PSYCHIATRY, INTRODUCTORY CLINICAL LECTURES

plus 4 semester-hour credits of electives in Pathology, Pharmacology, and others

(16-week vacation)

THIRD AND FOURTH YEARS (the last 72 weeks in rotation, including 8-week vacation)	TERM V (14 weeks)
	CLINICAL CLERKSHIPS (56 weeks)
	ELECTIVES (8 weeks)

MAJOR CLINICAL SITUATIONS, CONTINUING CARE PROGRAM, LECTURES IN CLINICAL SUBSPECIALTIES

plus 4 semester-hour credits of electives in Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Psychiatry, and others.

C. Patient Care

INPATIENT CLERKSHIPS:

Psychiatry (4 weeks), Medicine (12 weeks), Surgery (12 weeks), Obstetrics and Gynecology (8 weeks), Pediatrics (8 weeks)

OUTPATIENT CLERKSHIPS:

General Medicine and Medical Specialties (8 weeks), Emergency Room (4 weeks)

D. Career Electives

SUPPLEMENTARY CLINICAL CLERKSHIPS OR BASIC SCIENCE OR CLINICAL RESEARCH

DEGREES

The four-year program of the School of Medicine, described above, leads to the degree of Doctor of Medicine.

In cooperation with Columbian College of Arts and Sciences, a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine is offered. In cooperation with the Graduate School of Arts and Sciences a program leading to the combined degrees of Master of Science and Doctor of Medicine is offered.

The basic science departments of the School of Medicine cooperate with the Graduate School of Arts and Sciences in offering the degree of Master of Science in the fields of anatomy, biochemistry, microbiology, pharmacology, and physiology; and in directing the research of candidates for the degree of Doctor of Philosophy in more than fifty fields of the medical sciences.

EQUIPMENT AND BASIC SCIENCE FACILITIES

Facilities for the School of Medicine are located at 1331, 1335, 1337, and 1339 H Street, N.W., in downtown Washington.

Administrative Offices.—The administrative offices of the School, 1331 H Street, consist of the offices of the Dean of the Medical Center, Medical Admissions, Research Administration, Public Relations, and the Medical Alumni Association.

Medical School Buildings.—In the buildings housing the School of Medicine, 1335 and 1337 H Street, there are lecture rooms, classrooms, students' rooms, and the following laboratories: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology. The laboratories are fully equipped to enable students to pursue adequately the laboratory courses and to acquire the technical skill necessary in modern clinical and investigative work.

Research Building.—The Research Building, 1339 H Street, houses special laboratories for graduate and staff research in the departments of Anatomy, Biochemistry, Microbiology, Pharmacology, and Physiology. Special facilities are provided for the study of radioactive compounds, for tissue-culture techniques, and for virologic procedures. Qualified students are invited to participate in certain aspects of the research program either on a volunteer basis or with the support of special Research Scholarships.

Teaching Aids.—This administrative unit of the School of Medicine directs the activities of the following service functions: Medical Illustration and Photography, Audio-visual Facilities (including television), and Xerox Duplication.

Medical Library.—The Medical Library, in well-equipped quarters on the first floor of 1339 H Street, N.W., contains 37,000 carefully selected volumes, including the new medical works and the principal medical journals.

Interlibrary loan service is maintained with other medical and scientific libraries.

The Medical Library is open from 7:30 a.m. to 10 p.m. each class day, Monday through Friday; from 9 a.m. to 5 p.m. Saturday; and from 12 noon to 5 p.m. Sunday.

A branch of the Medical Library is maintained in the University Hospital for the use of the resident physicians, interns, and students. It is open Monday through Friday, from 8:30 a.m. to 5 p.m. and 6 to 11 p.m. During the academic year the library is also open Saturday and Sunday from 1 to 5 p.m.

CLINICAL FACILITIES

Students at the George Washington University School of Medicine receive clinical training at the University Hospital, at the University Clinic, at the University Cancer Clinic, and at affiliated hospitals.

The George Washington University Hospital.—This 550-bed hospital, staffed and directed by the Faculty of the School of Medicine, provides excellent clinical opportunities for the instruction of medical students. The Chief of Staff and Chiefs of Departments and Sections are responsible for the supervision of patient care. Under guidance, the individual student has direct responsibility to patients. Clinical conferences are held in which the history of patients, laboratory records, and the physical and pathological findings are presented and correlated.

The Meyer Pavilion, a new addition, has greatly enriched the facilities of the University Hospital by making available new monitored operating rooms; a clinical research unit; a radioisotope laboratory; and radiotherapy facilities, which include a linear accelerator.

The University Clinic.—The University Clinic is housed in a 10-story building adjacent to the University Hospital. Clinic facilities for each Hospital Service are available. Students are assigned in rotation by section for instruction in the University Clinic.

The George Washington University Cancer Clinic.—The Helen L. and Mary E. Warwick Memorial Building houses the Cancer Detection Clinic and special laboratories for research related to the nature, diagnosis, and treatment of cancer.

The facilities of the Cancer Detection Clinic are used for teaching medical students. The diagnosis and treatment of various forms of neoplasms are presented. The results of treatment are evaluated by follow-up studies.

Children's Hospital.—This is one of the largest and best known hospitals for children in the United States. Medical students receive training and clinical experience in pediatrics on both clinic and inpatient services. Special lectures and clinical work in child psychiatry are given in Children's Hospital.

Columbia Hospital for Women.—This 150-bed hospital, situated only two blocks from the University Hospital, is utilized by medical students at George Washington University for clinical training in obstetrics and gynecology. Each year about 10,000 patients are admitted, and there are 12,000 outpatient visits. Almost 5,000 deliveries and 4,500 gynecological operations are performed annually. Columbia Hospital for Women is an affiliated hospital for residency training in Obstetrics and Gynecology in the George Washington University Medical Center Program.

District of Columbia General Hospital.—The District of Columbia General Hospital, one of the largest general hospitals in the country, is a teaching facility for students in the School of Medicine.

The hospital has a bed capacity of approximately 950. It is the principal facility for the care of the indigent sick of the community. Annually, the outpatient department has over 160,000 clinic visits; approximately 58,000 patients register in the emergency room, and 22,500 are admitted to the hospital. This is the largest emergency service in the District, and a great variety of acute medical and surgical problems are examined and treated.

Fairfax Hospital.—This new and already expanding 300-bed voluntary community teaching hospital serves a burgeoning suburban area and provides all clinical services including psychiatry. Each year over 14,000 patients are admitted, 3,400 babies delivered, 8,000 surgical operations performed, and 27,000 persons examined and treated in the Emergency Suite. Fairfax Hospital offers a rotating internship program, a School of Medical Technology, and clinical

facilities for a School of Practical Nursing. Students of the School of Medicine serve at this hospital in clinical clerkship, continuing care, and elective programs. Fairfax Hospital is an affiliated hospital for residency training in Medicine, Surgery, and Obstetrics and Gynecology in the George Washington University Medical Center Program.

St. Elizabeths Hospital.—St. Elizabeths Hospital, established by an act of Congress in 1855, is a federal psychiatric hospital administered under the Department of Health, Education, and Welfare. This hospital provides for the treatment, care, and general well-being of approximately 7,500 patients of whom 5,900 are resident. The facility includes a completely approved General Hospital to meet the needs for medical and surgical care and functions with a full-time staff within the hospital plus attending physicians in various specialties. The hospital maintains an up-to-date medical library.

Medical students of George Washington University utilize the facilities of St. Elizabeths for clinical psychiatric training. Opportunities for research are enhanced by a cooperative arrangement with the National Institute of Mental Health of the United States Public Health Service.

Veterans Administration Hospital.—This new 700-bed hospital, which replaces the Mt. Alto Veterans Administration Hospital and the Veterans Administration Outpatient Clinic, was opened in May, 1965.

In addition to the medical, surgical, psychiatric, neurological, tubercular, and physical medicine and rehabilitation services, there is a large outpatient program; an extensive medical research program; programs in open heart surgery, cobalt therapy, and renal dialysis; a metabolic program; and a specially designed Administrative Research Laboratory.



Washington Hospital Center.—Opened in 1958, this 810-bed private, voluntary institution serves the greater Washington area through a triad of activities: patient care, teaching, and research. The Center is the tenth busiest of more than 7,000 hospitals in the United States and the second busiest private hospital in terms of inpatient admissions. A very active emergency service cares for more than 40,000 patients a year, and the 36 clinics provide all major clinical service except pediatrics for about 100,000 outpatients yearly. In addition to an extensive approved internship and residency program, the Center offers organized instruction for nurses, laboratory and X-ray technicians, medical secretaries, and other health-related vocations.

GOVERNMENT MUSEUMS

The Armed Forces Institute of Pathology, on the grounds of Walter Reed Army Medical Center, affords unexcelled opportunity for study of conditions met in general medicine and surgery as well as those of special military significance. Its collection of anatomical and pathological specimens comprises material received from all areas of the world and is unequalled in this country. The Museum of Hygiene, the National Museum, the Smithsonian Institution, the Botanic Gardens, and the various collections of the Department of Agriculture all afford opportunity for study of materials of special interest in various areas of medicine and its allied sciences.

The Degree of Doctor of Medicine

ENTRANCE REQUIREMENTS

A MINIMUM OF 90 SEMESTER HOURS must have been earned in an accredited institution of higher learning. Credits earned in a professional school can be applied to the fulfillment of this minimum requirement only if they are acceptable by the applicant's college or university toward a Bachelor's degree in Arts or Science. A credit under the quarter system is two-thirds of a semester hour. It is advantageous to complete four full years of undergraduate work. Only exceptional students can be accepted upon completion of the minimal requirements.

The following courses must be completed with satisfactory achievement before the applicant can be certified for matriculation. All required science courses must include sufficient laboratory work to give assurance of familiarity with the experimental methods and techniques of the disciplines.

1. **Biology:** 8 semester hours. This may be either in general biology or zoology but may not include separately credited courses in botany.
2. **Chemistry:** 8 semester hours of general inorganic chemistry (which may include qualitative analysis), including 4 semester hours of laboratory; and 6 to 8 semester hours of organic chemistry, including laboratory.
3. **Physics:** 8 semester hours, including at least 2 semester hours of laboratory.
4. **English:** 6 semester hours in composition and literature. This may be the usual introductory college course or its equivalent.

While not required for admission, courses in embryology, histology, genetics, and mathematics are strongly recommended.



ADMISSION PROCEDURE

The applicant should give careful attention to the entrance requirements, supplying all the information asked for on the application and furnishing the School with all the required credentials. An applicant cannot be considered until the following are received:

1. A fully completed *Application for Admission*.
2. Official transcripts of record from the registrar of *each* college, university, professional school, or other medical school attended—including summer sessions. Inclusion of transferred credits on a transcript will *not* serve in place of the transcript from the school where the credits were earned. Applicants currently in attendance should request official transcripts of record to date and send *supplemental transcripts* as soon as courses are completed and grades are recorded.
3. Letters of recommendation from the applicant's premedical advisory committee or from the references given in the application.
4. The results of the Medical College Admission Test, sponsored by the Association of American Medical Colleges. (Information concerning this test may be obtained from premedical advisers or The Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017.)
5. A check or money order made out to George Washington University in the amount of \$25 to cover the cost of evaluating credentials.

ADVANCED STANDING

The School of Medicine's curriculum is such that admission with advanced standing is ordinarily limited to the third year. Applicants for admission to the second year will be considered in exceptional circumstances. The applicant must:

1. Be or have been a regularly registered student in a school of medicine which is a member or an affiliate member of the Association of American Medical Colleges.
 2. Be in good standing and eligible to continue in the school where he is currently enrolled, or eligible to re-enter that school if his education has been interrupted.
 3. Have completed a course of study at least equivalent to that required for advancement to the year for which he is applying had he been a student in the George Washington University School of Medicine. For admission to the second year, he must have completed all work in anatomy, biochemistry, microbiology, and physiology.
 4. Have the endorsement of the dean of his school of medicine or his authorized delegate.
 5. Pass each examination of Part I of the National Board Examinations if he is applying for admission to the third year. He should plan to take the examination in June of the year in which he wishes to enter.
- The application procedures are otherwise the same as those given under the general instructions for admission.

SELECTION PROCEDURES

The Committee on Admissions reviews credentials as soon as they are complete. The Committee is guided in the selection of students by the applicant's

academic ability, the results of the Medical College Admission Test, and personal qualifications as determined by letters of reference and personal interview. Applicants are interviewed regionally or locally on invitation by the Committee. The applicant who is invited to an interview should make every effort to keep the appointment or let the School know promptly if another arrangement must be made. The interviewer's report is an essential part of the applicant's record. The Committee on Admissions will not make a final recommendation until it has been received.

Each applicant is notified of the Committee's decision as soon as possible. An applicant who is offered a place in a class is required, within two weeks, to notify the Office of Admissions of the School of Medicine of his intent to accept the place reserved for him. A deposit of \$100 must be remitted not later than March first prior to the opening of classes of the academic year for which he applied. This deposit will not be refunded after March first. It will be credited toward the tuition for the first semester.

Accompanying the offer of a place in class will be forms for a report on physical condition. This report must be completed and returned to the Office of Admissions of the School of Medicine by the student's physician within two months of receipt of the letter of acceptance.

All questions related to admissions, requests for applications, or the mailing of applications and credentials should be addressed to: Office of Admissions, George Washington University School of Medicine, 1331 H Street, N.W., Washington, D.C. 20005.

REGISTRATION

For the fall semester of the academic year 1969-70, registration will be conducted at the University Gymnasium, 2010 H Street, N.W., from 10 a.m. to 4 p.m., September 11. The time and place of registration for the spring semester, and the summer session of fourth-year clerkships, will be announced.

FEES AND FINANCIAL REGULATIONS

The following fees have been established for the academic year 1969-70. (See page 21 for projected tuition increases for 1970-73.)

Application fee	\$25
Tuition fee, for each academic year	\$1,950
Late registration fee, for failure to register within the designated period	\$15
Reinstatement fee, for reinstatement after financial suspension for non-payment of fees	\$15
Service fee, for deferred payment plan (see "Payment of Fees," page 21)	\$5
Continuous Registration fee, charged each student granted "leave of absence" status for each semester in the School of Medicine	\$64
Graduation fee	\$25
Returned check fee, charged a student whose check is returned because of insufficient funds or improper drafting.....	\$15

PAYMENT OF FEES

The annual fee of \$1,950 is payable at the rate of \$975 on or before registration day for each semester. Students registered for the summer session of fourth-year clerkships will be on "continuous registration" without charge until the following fall semester.

All fees are payable at the Office of the Cashier of the University, except as some other arrangement may be announced. The Student Accounts Office has responsibility for creating, billing, and maintaining student accounts resulting from tuition and room and board charges. While tuition is due and payable in full as described above, a student may sign a contract with this Office at the time of registration permitting him to pay one-half of the semester fee at the time of registration and the remaining half on or before November 5, 1969, for the fall semester and March 18, 1970, for the spring semester. A service fee of \$5 is charged for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance, of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended. They may not attend classes until they have paid all accrued fees and a \$15 reinstatement fee and have been officially reinstated by the Student Accounts Office. Applications for reinstatement are to be made to the Student Accounts Office.

After a student has entered the course of instruction he is obligated for the tuition for the full semester. A student registered for the clerkships of the summer session is obligated for tuition due at the time of registration for the following fall semester, except that in the case of withdrawal or leave of absence a *pro rata* payment will become due immediately.

Acceptance by the University of a student's fees does not in any way obligate the School of Medicine to accept the student for any subsequent semester or summer session, and the right is reserved to require the withdrawal of any student whenever, in the interest of the student or the School, the Faculty deems it advisable to do so.

PROJECTED TUITION INCREASES FOR 1970-73

Academic year tuition increases have been estimated as follows: 1970-71, \$50; 1971-72, \$100; 1972-73, \$100. It is not possible to project future economic data with certainty; however, barring unforeseen developments, these tuition increases will be followed.

COST OF TEXTBOOKS AND STUDENT EQUIPMENT

The minimum cost of necessary textbooks and student equipment (microscope, drawing materials, glass slides, clinical thermometer, stethoscope, hemocytometer, uniforms, etc.) is approximately as follows: first year, \$600; second year, \$300; third year, \$150; and fourth year, \$100. Microscopes must be provided by the student. Rentals are not available.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Exchange Bank, Philadelphia, Pa.; Funds for

Education, Inc., Manchester, N.H.; and The Riggs National Bank, Washington, D.C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple-year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of Student Financial Aid, George Washington University, Washington, D.C. 20006.

DEGREE REQUIREMENTS

DOCTOR OF MEDICINE

Every candidate for graduation with the degree of Doctor of Medicine must have satisfactorily completed the requirements of the School of Medicine as described under "Plan of Instruction" on pages 11-13, including not less than four academic years of study as a matriculated student in Medicine. He must have completed all required courses and passed satisfactorily all prescribed examinations.

HONORS

A candidate who has completed the four-year medical course with a quality-point index of 3.50 or above may be recommended by the Faculty for graduation "with distinction."

COMBINED BACHELOR OF ARTS AND DOCTOR OF MEDICINE

In order to be recommended for the degree of Bachelor of Arts, the candidate must complete at least 94 semester hours of prescribed college work (at least 30 hours and one year of residence must be completed in Columbian College of Arts and Sciences) and the first year of the medical curriculum. Upon satisfactory completion of the fourth year of the medical curriculum the student becomes eligible for the degree of Doctor of Medicine.

COMBINED MASTER OF SCIENCE AND DOCTOR OF MEDICINE

Students in the School who wish to apply for the combined degrees of Master of Science and Doctor of Medicine must meet the requirements for admission to the Graduate School of Arts and Sciences. They must be recommended by the chairman of the department and by the deans of the Graduate School of Arts and Sciences and the School of Medicine.

The Master of Science program consists of a minimum of 30 semester hours of credit. A maximum of 12 semester hours of credit for graduate-level courses *completed as a part of the medical curriculum* (and not already applied toward the Bachelor's degree) will be allowed in fulfillment of the requirements of the Master of Science degree.

MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

The requirements for the degrees of Master of Science and Doctor of Philosophy are stated in the *Undergraduate and Graduate Catalogue* of the University, which is available at the Office of Admissions, George Washington University, Washington, D.C. 20006.

FINANCIAL AID

The following fellowships, scholarships, and loan funds are available to students in the School of Medicine. Unless otherwise specified, inquiries should be directed to the Office of the Dean of the Medical Center, George Washington University, 1331 H Street, N.W., Washington, D.C. 20005.

FELLOWSHIPS

Wilbur J. and Edith K. Carr Memorial Fellowship Fund (1965).—By bequest of Edith K. Carr, former Trustee of the University. The income from this fund provides fellowships in surgery, medicine, or medical research at the George Washington University Hospital.

Samuel Jordan Graham Fellowship in Surgery (1961).—By bequest, in memory of Judge and Mrs. Graham. The income from this fund, up to \$2,000, may be used to assist students who are pursuing postgraduate study or research, preferably in surgery, at the School of Medicine.

If no individual is conducting such work or deserving of the award, the income may be used to provide one or more scholarships (to cover tuition and other school expenses deemed appropriate) for undergraduate students in the School of Medicine. Application should be filed with the Chairman of the Department of Surgery no later than March 1.

Robin Miller Research Fellowship (1953).—A \$3,000 fellowship established by bequest of Mrs. Robin Miller for the study of cardiovascular diseases.

Henry Rau Foundation Student Fellowship Grant (1967).—Awarded annually to a student in the School of Medicine for research in cancer and allied diseases at the George Washington University Cancer Clinic.

U.S. Public Health Service Training Grants.—Information concerning training grants in fields of the medical sciences is available at the Office of the Dean of the Medical Center.

SCHOLARSHIPS

Scholarships awarded to students in the School of Medicine are credited for the academic year unless otherwise specified. Each holder must carry a full schedule of academic work during the period for which the scholarship is awarded. Applicants should apply on prescribed forms which must be filed in the Office of the Dean of the Medical Center no later than April 1 preceding the academic year for which the scholarship is to be awarded.

Avalon Foundation Scholarship Fund (1967).—Provided by the Avalon Foundation of New York for students in the School of Medicine.

Anna Bartsch Hospital Intern Scholarship (1946).—A partial scholarship established by Dr. Anna Bartsch-Dunne as a memorial to her mother. Awarded to a woman intern in the University Hospital.

Anna Bartsch Medical Student Scholarship (1946).—A partial scholarship established by Dr. Anna Bartsch-Dunne as a memorial to her mother. Awarded to a woman in the School of Medicine "of outstanding scholarship, character, and promise, who intends to make the practice of medicine her life profession."

Jack I. Bender Scholarship (1967).—Established by the family of Jack I. Bender as a memorial to their father. Awarded annually to students in the School of Medicine on the basis of academic performance and need.

Everett Lamont Bradley Scholarship (1954).—A partial scholarship, by bequest of Alice R. H. Bradley in memory of her son, for a student in the School of Medicine.

Dr. Edith Seville Coale Scholarships (1965).—Provided at the request of Dr. Coale for women in the School of Medicine. The scholarships are administered by the Zonta Club of Washington.

Joseph Collins Foundation Scholarships.—Available to medical school students upon application through the Office of the Dean.

George Washington University Medical Alumni Scholarships (1965).—One \$1,000 scholarship awarded to a student in each of the four classes of the School of Medicine, on the basis of financial need and scholarship.

Health Professions Scholarship Program (1966).—Awarded by the School of Medicine to students who qualify under the provisions of Public Law 89-920. Inquiries should be directed to the Dean of the Medical Center.

Robert Woods Johnson Scholarship Fund.—Available to medical students upon application through the Office of the Dean.

Ki-Wives of Washington Scholarship Fund (1963).—A tuition scholarship available to a student or students in the School of Medicine.

Medical Research Scholarships and Traineeships.—For student participation in the research programs of the School of Medicine or special training in research methods. Research scholarships are ordinarily awarded for full-time activity during the summer months; research traineeships support part-time work during the academic year. Scholars are "matched" with members of the faculty in accordance with their mutual interests. Trainees are designated by the departments responsible for the programs. These programs have been sponsored by the National Institutes of Health, the National Foundation, and the Council for Tobacco Research—U.S.A. In addition a number of research scholarships have been made available through the Washington Heart Association.

Paul Pearson Scholarship Fund (1940).—Available to students who are taking graduate courses in the Department of Pharmacology.

Chas. Pfizer Medical Scholarship Program (1962).—Established to financially assist a student in the School of Medicine.

David Perry Steinman Memorial Scholarship Fund (1960).—Established by friends and classmates. Awarded annually to a sophomore in the School of Medicine on the basis of need and academic performance.

James J. Whisman Scholarship (1966).—A partial scholarship by bequest of James J. Whisman for needy and deserving students in the School of Medicine.

COLUMBIAN WOMEN SCHOLARSHIP FUNDS

The Columbian Women Scholarships are awarded to women students on the basis of financial need and scholastic attainment. Candidates must have completed a minimum of 15 hours at this University with a minimum B (3.0) average. A letter of application for these scholarships should be addressed to

the Chairman, Columbian Women Scholarships, care of the Alumni Office, George Washington University, Washington, D.C. 20006, no later than May 15 for the fall semester, and January 1 for the spring semester. Scholarship aid is awarded from income of the following endowments:

Jessie Fant Evans Scholarship Fund (1967).—A \$10,000 fund for tuition aid.

Lewes D. and Myrtie H. Wilson Memorial Scholarship Fund (1926).—A fund of \$1,000 for tuition aid, established by Elizabeth Wilson as a memorial to her parents.

LOAN FUNDS

American Medical Association Medical Education Loan Guarantee Program (1960).—Available to medical school students (beyond the first semester of medicine).

Edith K. Carr Medical School Loan Fund (1962).—Established by Mrs. Carr for loans to students in the School of Medicine.

Health Professions Student Loan Program.—This fund is available to a full-time student pursuing a course of study leading to the degree of Doctor of Medicine. Interns, residents, students engaged in premedical or other professional training, students enrolled in programs of study other than those leading to the degree mentioned above, are *not* eligible for these loans.

A candidate must (1) be a citizen of the United States or have such immigration status and personal plans as to indicate that he intends to become a permanent resident of the United States, (2) be in need of the amount of the loan to be able to pursue his course of study, and (3) be in good standing with the School. Inquiries concerning deadlines and applications should be directed to the Dean of the Medical Center.

Joseph H. Himes Loan Fund (1956).—Available for loans to students in the School of Medicine.

W. K. Kellogg Medical School Loan Fund (1942).—Established by W. K. Kellogg Foundation in Battle Creek, Michigan, for loans to students in the School of Medicine.

Jessie B. Martin Loan Fund (1967).—Established by friends of Jessie B. Martin, former Editor of Academic Publications at the University. An emergency student loan fund available to needy students.



Pfizer Medical School Loan Fund (1953).—Established by Chas. Pfizer & Co., Inc., for loans to students in the School of Medicine.

School of Medicine Loan Fund (1951).—A fund established and supported by medical school students, available for loans to students in the School of Medicine.

Sutherland Medical School Loan Fund (1941).—Established by Rose L. Sutherland for loans to students in the School of Medicine.

W. E. Wrather Medical Student Loan Fund (1967).—Established by Mrs. Olive D. Wrather in memory of her husband, for loans to students in the School of Medicine.

PRIZES

Samuel M. and Miriam S. Dodek Prize (1967).—Established in memory of Professor Bernhard Zondek, the eminent discoverer of the endocrinology of the human female reproductive cycle. Awarded annually to a member of the graduating class of the School of Medicine who has attained a commendable knowledge and understanding of the field of female endocrinology.

Allie S. Freed Prize (1957).—Awarded annually to a member of the graduating class in the School of Medicine who has demonstrated exceptional proficiency in the field of preventive medicine.

Walter Freeman Prize (1966).—Awarded annually to a student in the graduating class in the School of Medicine who submits the best essay based on original investigation.

Alec Horwitz Prize (1959).—A prize of \$100 awarded annually to a senior who has demonstrated exceptional proficiency in the field of surgery.

Oscar Benwood Hunter Prize (1952).—Established by The George Washington University Medical Society, now known as The George Washington University Medical Alumni Association. Awarded annually to a member of the graduating class of the School of Medicine who has demonstrated outstanding ability in pathology.

Jacobi Medical Society Prize (1962).—Established in memory of Dr. Abraham Jacobi, the founder of pediatrics practice in the United States. Awarded annually to a member of the graduating class of the School of Medicine who has demonstrated outstanding ability in pediatrics.

Howard Kane-A. F. A. King Obstetrical Society Prize (1937).—Established in memory of Dr. Howard Kane and Dr. A. F. A. King, who served as Professors in the School of Medicine. Awarded annually to a member of the graduating class of the School of Medicine who has demonstrated outstanding ability in obstetrics and gynecology.

Huron W. Lawson Prize (1957).—A prize of \$100 established by Mrs. Lawson in memory of her husband, who was a distinguished member of the Medical Staff of the University, presented annually to a member of the graduating class who has demonstrated exceptional proficiency in the field of obstetrics and gynecology.

Benjamin Manchester Prize (1966).—Established by a grateful patient in honor of Doctor Benjamin Manchester, Associate Clinical Professor of Medicine. Awarded annually to a member of the graduating class in the School of Medicine who has an outstanding record and shows promise of real humanitarianism in the practice of medicine.

Julius S. Neviasser Prize in Orthopaedic Surgery (1956).—A prize of \$100 awarded annually to the senior in the School of Medicine who scores the highest grade in a written examination and clinical aspects of orthopaedic surgery.

John Ordronaux Prize (1907).—By bequest, \$150 awarded annually to the member of the graduating class of the School of Medicine who has the highest scholastic standing.

Phi Delta Epsilon Prize (1965).—Awarded annually to a student in the School of Medicine for scholarship, leadership, and service, and who is a member of Phi Delta Epsilon.

William G. Schafhirt Prize (1966).—By bequest, \$200 awarded annually to the senior student in the School of Medicine for the best original essay or thesis on some medical subject of current public interest.

REGULATIONS

ATTENDANCE

A student is not permitted to attend classes until registration has been completed and fees due have been paid. Regular attendance is required.

GRADES

A—excellent; *B*—good; *C*—satisfactory; *D*—passing; *F*—failure; *I*—incomplete; *CR*—credit.

The grade *I* (incomplete) is a temporary grade. It indicates that the required work of the course has not been completed for reasons acceptable to the Dean. An "incomplete" must be removed by arrangement with the department concerned before the student may advance to the work of the following year. The appropriate permanent grade is thereupon assigned.

The grade *CR* (credit) is assigned in those courses in which attendance is required but qualitative evaluation is not made.

A student receiving a grade of *F* in any subject may not advance to the work of the following year until he has complied with such recommendations of the Committee on Scholarship as are approved by the Executive Faculty.

QUALITY-POINT INDEX

For purposes of quantitative evaluation of academic performance a "quality-point" index is computed on the basis of *A*, four points; *B*, three points; *C*, two points; *D*, one point; and *F*, zero points.

PROBATION

Any student in the School of Medicine not maintaining a 2.00 quality-point index at the beginning of each school year will be placed on academic probation. No student will be allowed to continue in the School of Medicine if he exceeds three semesters of probation.

ACADEMIC DISMISSAL

A student whose cumulative quality-point index falls below 1.50 or whose academic achievement is otherwise considered unsatisfactory will be recom-

mended to the Committee on Scholarship for dismissal from the School of Medicine.

EXAMINATIONS

Examinations, which may be written, oral, or practical, will be held during and at the end of each semester.

All students in the School of Medicine are required to take Part I and Part II of the National Board of Examinations. A student failing to attain a passing average for the Part I examinations must repeat in September of the same year the examinations in those subjects in which he failed to make a passing grade. Such a student shall be registered for the fifth semester in the School of Medicine on academic probation.

ACADEMIC DISHONESTY

Academic dishonesty on the part of any student will result in a disciplinary grade of *F* for the course involved and also may, upon the recommendation of the Dean's Council, result in his suspension from the University for a stated period, at the end of which time he may petition for readmission. The disciplinary grade of "Failure—Academic Dishonesty" will be recorded for the course involved, and this grade will be employed in the computation of the quality-point index. A student so suspended shall be withdrawn from all other courses except those in which all work has been completed.

GRADUATION

Application for Graduation.—Application for graduation must be filed in the Office of the Dean and the fee must be paid at the time of registration for the last semester of the senior year.

Presence at Graduation.—A candidate is required to be present at the graduation exercises unless written application for graduation *in absentia* is approved by the Dean.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

UNIVERSITY POLICY ON THE RELEASE OF STUDENT INFORMATION

In general, the policy of the University is one of attempting to keep the student's record confidential and out of the hands of those who would use it for other than legitimate reasons. At the same time, the policy must be flexible

enough not to hinder the student, the University, or the community in their legitimate endeavors.

No information concerning a student will be released, except as noted below, unless required by court order or subpoena, or requested in writing by the student:

1. Information which is of public record, such as whether or not the student is currently enrolled; dates of attendance; whether or not he received a degree; current address and telephone number; the college or school in which he is enrolled.
2. The issuance of formal transcripts of record to recognized institutions of higher learning; the certification of academic achievement to the various recognized professional associations (law, medicine, engineering, education, etc.); and the inspection of records, under appropriate supervision, by properly validated representatives of government investigative agencies.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open Monday through Friday, from 9 a.m. to 10 p.m. during the academic year and from 9 a.m. to 9 p.m. during the Summer Sessions, with physician in attendance. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (2) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.* All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a

* See rule 5 for exception.

student intending to train for an athletic team is required to pass a thorough examination; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

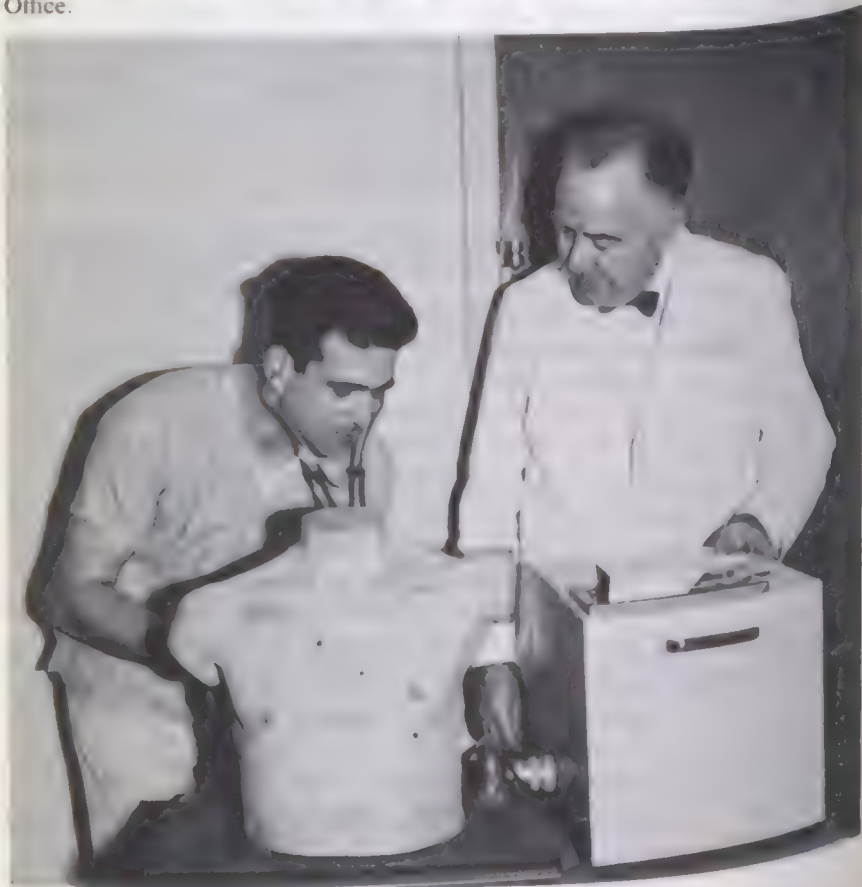
The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Physical Education.

HEALTH AND ACCIDENT INSURANCE

In addition to the above services, the Health Services Staff has arranged for Health and Accident Insurance, on an elective basis, for all full-time students. This policy covers the participant for 12 months whether at home, at the University, or elsewhere.

Current yearly cost is \$34.56 (subject to change) payable at the fall registration. Arrangements can be made to pay in two equal installments at the fall and spring registrations.

This policy contract is between the individual student and the insurance carrier and is accepted at any hospital or emergency room that accepts this type of medical work. Details of the policy are available at the Health Services Office.



PHYSICAL EXAMINATIONS

All first-year students are required to have a comprehensive physical examination prior to admission to the School of Medicine. The students are informed of significant findings and advised regarding such measures as will tend to help them maintain a high standard of health.

In addition medical students benefit from the complete Tuberculosis Case Finding Program which the School maintains. Under this program all students receive tuberculin tests, X-ray examinations, and such special attention from chest specialists as is necessary to reduce to a minimum the dangers from tuberculosis. Students are immunized against those diseases for which proven prophylaxis exists.

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing may be obtained at the Office of the Dean of the Medical Center. Reservations for private housing must be made by students.

HONOR SOCIETIES

Alpha Omega Alpha.—National Honor Medical Society. Members of the Junior and Senior classes meeting the qualifications specified by the constitution of the Society are eligible for election to membership.

William Beaumont Medical Society.—Medical students showing unusual ability for medical writing and research are elected by the active members of this society.

Howard Kane-A. F. A. King Obstetrical Society.—The fifteen students in the third- and fourth-year classes who maintain the highest grades in their work in obstetrics are eligible for membership.

Smith-Reed-Russell Society.—Students of the third and fourth years who maintain a quality-point index of 3.30 or higher are eligible for membership.

RECREATION

The Nation's capital provides abundant recreational resources, a large number of which are available at little or no cost. There are numerous art galleries, museums, concert halls, theaters, swimming pools, parks, and places of great historic interest. Social activities are provided by student organizations of the University, the School of Medicine, and University-sponsored programs such as intramural sports, concerts, recitals, and dramatic productions. Religious faiths are represented in Washington by one or more churches. Washington is one of the most colorful cultural and scientific centers of the world.

The University Hospital

THE MEDICAL STAFF CONSISTS of the following groups: Emeritus, Honorary, University, and Courtesy.

Physicians on the Faculty and Staff of Instruction of the School of Medicine are eligible for appointments to the University Hospital Staff. The Administrator of the Hospital and Clinics and the Director of Nursing are ex officio members.

OFFICE OF THE CHIEF OF STAFF

J.J. Feffer, B.A., M.D., *Chief of Staff*

A.E. Parrish, M.D., *Director of Clinical Research*

Bertle Nelson, B.A., M.D., *Secretary of the Medical Staff*

DEPARTMENTS AND SECTIONS

Department of Anesthesiology: C.S. Coakley, M.D., *Chief*

Department of Dermatology: R.S. Higdon, B.S., M.D., *Chief*

Department of Medicine: T.M. Brown, B.A., M.D., *Chief*; M.J. Romansky, B.A., M.D., *Associate Chief*

Heart Station: J.M. Evans, B.A., M.D., *Director*

Section of Allergy: Halla Brown, M.D., *Chairman*

Section of Cardiology: J.M. Evans, B.A., M.D., *Chairman*

Section of Gastroenterology: T.S. Sappington, B.A., M.D., *Chairman*

Section of General Medicine: _____

Section of Hematology: J.J. Rheingold, B.A., M.D., *Chairman*

Section of Infectious Diseases: M.J. Romansky, B.A., M.D., *Chairman*

Section of Internal Medicine: Mary Watt, M.D., *Chairman*
Section of Metabolic and Endocrine Diseases: L.K. Alpert, B.S., M.D., *Chairman*

Section of Pulmonary Diseases: Milton Gusack, B.A., M.D., *Acting Chairman*

Section of Renal Diseases: A.E. Parrish, M.D., *Chairman*

Department of Neurology and Neurological Surgery: J.W. Watts, B.S., M.D., *Chief*

Electroencephalographic Laboratory: Harold Stevens, Ph.D., M.D., *Director*

Department of Obstetrics and Gynecology: J.G. Sites, M.D., *Chief*

Department of Ophthalmology: J.W. McTigue, B.A., M.D., *Chief*

Department of Pathology and Clinical Pathology: T.M. Peery, B.A., M.D., D.M.S., *Chief*

Department of Pediatrics: F.P. Heald, B.A., M.D., *Chief*

Department of Physical Medicine and Rehabilitation: John Watt, Jr., B.S., M.D., *Acting Chief*

Department of Psychiatry: Leon Yochelson, B.A., M.D., *Chief*

Department of Radiology: W.W. Stanbro, M.D., *Chief*

Department of Surgery: Brian Blades, B.A., M.D., *Chief*; P.C. Adkins, B.A., M.D., *Associate Chief*

Section of General Surgery: Brian Blades, B.A., M.D., *Chairman*

Section of Oral Surgery: S.G. Mead, D.D.S., *Chairman*

Section of Orthopaedics: J.P. Adams, B.S., M.D., *Chairman*

Section of Otorhinolaryngology: J.J. McFarland, Jr., B.S., M.D., *Chairman*
 Section of Plastic Surgery: G.S. Letterman, B.S., M.D., *Chairman*
 Section of Traumatology: D.S. Wenger, M.S., M.D., *Chairman*
 Section of Urology: L.R. Culbertson, B.S., M.D., *Chairman*
 University Clinics: J.J. Feffer, B.A., M.D., *Chief of Staff*
 Cancer Clinic: C.T. Klopp, B.A., M.D., *Director*
 Nursing: Irene Menassa, R.N., B.S., M.A., *Director*

ADMINISTRATIVE STAFF

OFFICE OF THE ADMINISTRATOR

V.F. Ludewig, B.S., *Administrator*
 F.A. Menk, *Associate Administrator*
 A.B. Clark, B.S., M.B.A., *Assistant Administrator*
 K.M. Brent, B.S., M.H.A., *Assistant Administrator*
 R.F. Whitehair, *Administrative Assistant*
 Irene Menassa, R.N., B.S., M.A., *Director of Nursing*
 Louise O'Neal, R.N., B.A., *Assistant Director of Nursing*
 Rainer Volk, *Comptroller*
 F.D. Cooper, M.S., *Chief Pharmacist*
 Madeline Brown, R.R.L., B.A., *Medical Record Librarian*

GENERAL INFORMATION

The George Washington University Hospital functions as an active teaching facility for students of the School of Medicine and for a large House Staff. It is fully approved by the American Medical Association, the American Hospital Association, the American College of Physicians, and the American College of Surgeons, through the Joint Commission for the Accreditation of Hospitals. The University Hospital is located on Pennsylvania Avenue at Washington Circle, six blocks from the White House, near the downtown area of metropolitan Washington. Annual admissions of inpatients number approximately 20,000; visits of ambulatory patients to the University Clinic and Cancer Clinic are approximately 40,000 a year.

The Eugene Meyer Pavilion is a new and attractive six-floor addition to the University Hospital that is now fully functional. In addition to one hundred new beds, the Eugene Meyer Pavilion contains a new and expanded operating suite specially serviced by modern electronic monitoring devices; an In- and Out-surgical Service which has its own reception accommodations, special operating rooms, and recovery area; an entire floor set aside for clinical research activities including a series of superbly equipped special laboratories and eighteen specially designated patient beds; a six-million volt linear accelerator that is especially useful to facilitate radiation therapy; a well-equipped and very active radioisotope laboratory devoted to a wide variety of diagnostic and therapeutic procedures; specially designed teaching and conference areas which have telephonic-dictating, tape-recording, and visual-projection devices available.

Remodeling, updating, and extensive modification of the original Hospital building is now in process. When this phase of the building program has been completed, the enlarged and renovated University Hospital will be centrally

air-conditioned throughout; will have a total of 550 beds for inpatient use; and will include a new delivery suite; specially designed and equipped intensive care and coronary care units; enlarged X-ray, pathology, and physical medicine departments; as well as all of the latest diagnostic and supporting facilities. The University Hospital has been designed to make available to patients the highest quality of diagnostic and therapeutic services, as well as to provide a broad spectrum of interrelated teaching and research activities.

The Council on Medical Education of the American Medical Association has approved the University Hospital for straight internship in medicine, pathology, and surgery, and, together with the various specialty boards, for residency training in anesthesiology, cardiac diseases, internal medicine, neurological surgery, obstetrics-gynecology, ophthalmology, orthopaedic surgery, pathology, physical medicine and rehabilitation, plastic surgery, psychiatry, radiology, surgery, thoracic surgery, and urology.

Junior and senior students of the School of Medicine are assigned to the University Hospital and Clinic to serve as clinical clerks in the various specialty departments, in the Emergency Room, and in different elective programs. Regular conferences for students, house staff, and attending physicians are held.

The George Washington University Cancer Clinic, housed in the nearby Helen L. and Mary E. Warwick Memorial Building, is part of the University Hospital clinical facilities. Cancer detection and chemotherapeutic and follow-up care, including a supervised home-care program, are among the activities of the Clinic. Approximately 2,500 new patients are seen in the Cancer Clinic each year. Excellent research laboratories form an important part of this facility. The Clinic has been approved by the American College of Surgeons.

Other major teaching activities include a residency program in hospital administration; close affiliation with the University's graduate program in hospital administration; programs in medical technology leading to the degree of Bachelor of Science in Medical Technology as well as to a certificate; and an affiliation for the training of practical nurses.

The Hospital has an excellent branch medical library. The House Staff can also arrange to use libraries of the School of Medicine and the University and outstanding city and federal libraries and record collections.

INTERNSHIP, RESIDENCY, AND FELLOWSHIP PROGRAMS

Internships.—Straight internships are available in medicine, pathology, and surgery.

Residencies.—Approved residencies are offered for a total of 138 positions in the fields of anesthesiology, cardiac diseases, internal medicine and most of its subspecialties, neurologic surgery, obstetrics-gynecology, ophthalmology, orthopaedic surgery, pathology, physical medicine and rehabilitation, plastic surgery, psychiatry, roentgenology, surgery, thoracic surgery, and urology. Residency programs are from one to four years in duration, depending upon the service. Residents and fellows in the University Hospital programs also receive appointments as members of the faculty of the School of Medicine with active teaching responsibilities.

Fellowships.—Fellowships, through the School of Medicine, of one or two years are available in allergy, anesthesiology, cardiology, chest diseases, gastroenterology, hematology, infectious diseases, metabolic diseases, oncology, pedi-

iatrics, physical medicine and rehabilitation, renal diseases, rheumatic diseases, surgery, thoracic surgery, and University Clinics.

All appointments are for one year with the privilege of applying for continuation on the House Staff. In several of the intern, residency, and fellowship programs, excellent affiliations are maintained with local and governmental hospitals. Inquiries and applications for internships and residencies should be addressed to the Chief of the Department or to the Chief of Staff; George Washington University Hospital, 901 23d Street, N.W., Washington, D.C. 20037.

Information relative to fellowships may be obtained from the Chief of the Department concerned or from the Associate Dean of the Medical Center, for Clinical Affairs, in care of the Hospital.



MEDICAL TECHNOLOGY COURSE

This course is open to candidates for the degree of Bachelor of Science in Medical Technology, offered by Columbian College of Arts and Sciences, and to the other applicants meeting the requirements of the Registry of Medical Technologists of the American Society of Clinical Pathologists. These requirements, fully satisfied by the Columbian College program, consist of 3 years (90 semester or 135 quarter hours) of college work in any college or university approved by the recognized regional accrediting agency, including certain specific courses in the science field. The specific science requirements are as follows: *Chemistry*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in chemistry and including lecture and laboratory; *Biological Sciences*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in biological science and including lecture and laboratory; *Mathematics*—a minimum of 3 semester hours or 4 quarter hours of college mathematics.

For students enrolled in Columbian College of Arts and Sciences as candidates for the degree of Bachelor of Science in Medical Technology, the Medical Technology Course constitutes the final (fourth) year of qualification for the degree.

In the case of those who have taken their prerequisite work in some other college or university, satisfactory completion of the Medical Technology Course will not satisfy the requirements for the degree from Columbian College.

The Medical Technology Course consists of 12 months of didactic and practical work in clinical laboratory procedures, offered by the Department of Pathology in the University Hospital. Students ordinarily begin this course with the fall semester, but under exceptional circumstances may begin at other times.

A limited number of scholarships are provided by the University Hospital for students enrolled in the fourth year of the degree program. All students in this fourth year must provide themselves with uniforms; laundry of uniforms is provided by the University Hospital. A cash allowance of \$65 a month is granted during the last 6 months of the fourth year in training.

Upon satisfactory completion of the course a certificate is awarded, and the candidate is eligible for the national certifying examination given by the Registry of Medical Technologists.

Enrollment in the Medical Technology Course is strictly limited so that personal instruction can be given. Acceptance to the Columbian College degree program does not necessarily assure acceptance into the Hospital program. Inquiry about this course should be sent directly to the Department of Pathology, George Washington University Hospital, Washington, D.C. 20037.

Alumni and Allied Associations

THE GENERAL ALUMNI ASSOCIATION

THE OBJECTIVES OF THIS ASSOCIATION are to unite graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to (dues or otherwise) or life members of the George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006. All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION

The George Washington University Medical Alumni Association, incorporated in 1959, continues the organization previously known as the George Washington University Medical Society.

The stated purposes of the Association are as follows: "This shall be a non-profit organization international in scope, whose objectives shall be to provide constructive services for the alumni of the George Washington University School of Medicine, for furthering the art and science of medicine, research, and for the promotion of the welfare of the George Washington University School of Medicine, its students, the George Washington University Hospital and its trainees."

Active membership in the Association consists of: all graduates of the School of Medicine; current members and, on application, past members of the teaching staff of the School of Medicine who hold Doctor's degrees; Doctors of Medicine who have had one or more years of postgraduate training in the George Washington University Hospital. Junior membership consists of all members of the student body of the School of Medicine during the time they are students.

The Medical Alumni Association maintains an office in the School of Medicine at 1331 H Street, N.W., Washington, D.C.

OFFICERS FOR 1968-69

- President*—William Brainin, B.A. 1931, M.D. 1934
- President Elect*—Maurice T. Gromet, B.A. 1931, M.D. 1934
- First Vice President*—Jack B. Kleh, B.A. 1942, M.D. 1944
- Second Vice President*—Thomas A. Wilson, B.A. 1942, M.D. 1944
- Secretary*—Jerome W. Canter, M.D. 1955
- Treasurer*—Marvin P. Footer, B.A. 1938, M.D. 1942
- Executive Council:*

- Jerome Epstein, M.A. 1948, M.D. 1953
- Alec Horwitz, B.A. 1920, M.D. 1923
- Angelo May, M.D. 1937
- Richard Palmer, B.A., M.D. 1944
- Carolyn Pincock, B.A. 1931, M.D. 1934
- George Speck, M.D. 1941
- Allan Zellis, M.D. 1941



COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES OF THIS CATALOGUE are listed the courses of instruction offered by the School of Medicine. The School of Medicine serves other divisions of the University by making available to nonmedical students certain undergraduate and graduate courses in the following departments: Anatomy, Biochemistry, Epidemiology and Environmental Health, Microbiology, Pathology, Pharmacology, and Physiology. The courses listed are subject to some slight change. The University reserves the right to withdraw any course announced.

EXPLANATION OF COURSE NUMBERS AND SYMBOLS

A number in parentheses after the name of the course indicates number of semester hours of credit which may be earned.

Courses numbered from 101 to 200 are for third- and fourth-year Columbian College of Arts and Sciences students.

Courses in the basic science departments are numbered from 201 to 400. They are for medical students and graduate students in the Arts and Sciences.

Courses in the clinical departments are numbered from 301 to 400. They are limited to medical students.

Anatomy*

Professors I.R. Telford (*Chairman*), Paul Calabrisi, C.M. Goss (*Visiting—Medical History*)

Professorial Lecturer J.L. Angel

Associate Professors F.D. Allan, T. N. Johnson, J.B. Christensen, J.W. Clarke (*Visiting*)

Associate Professorial Lecturers J.A. Di Paolo, M.S. Legator, L.E. Church

Assistant Professors H.E. Kaiser, Joan Blanchette, E.N. Albert

Assistant Clinical Professor R.N. Brown

Assistant Professorial Lecturer R.G. Clark

Instructor Michael Liebman

* Staff of Instruction for the academic year 1955-59.

- *201 Anatomy (12)** Staff
All anatomical disciplines are integrated: regional gross dissection, histology, neuroanatomy, embryology. (Fall)
- 202 Gross Anatomy (6)** Calabrisi and Staff
For graduate students. Regional dissections of adult cadaver supplemented with lectures and X-rays. Laboratory fee, \$30. (Fall)
- 203 Human Embryology (1)** Allan
For graduate students. Origin and development of human body; emphasis on value of embryology in interpreting anatomical anomalies. (Fall)
- 204 Neuroanatomy (2)** Johnson and Staff
For graduate students. Gross and microscopic anatomy of central nervous system and special senses. Laboratory fee, \$13. (Fall)
- 205 Microscopic Anatomy (3)** Telford and Staff
For graduate students. Microscopic structure of cells, tissues, and organs of the human body. Laboratory fee, \$13. (Fall)
- 221-22 Seminar (1-1)** Johnson and Staff
For graduate students. Research reports and discussions of special topics by staff and graduate students. Medical students encouraged to attend. (Academic year)
- 249 Introduction to Anatomical Research (1)** Telford and Staff
For graduate students. Major research techniques as applied to biological materials in the various anatomical disciplines. (Fall)
- 252 Physical Anthropology (1)** Angel
Variations in man and factors affecting him, human evolution and racial differences, anatomy and culture of ancient man. (Spring)
- 254 Fetal Anatomy (2)** Allan
Dissection of early and late human fetus. Comparison of fetal and adult structures. 20 students. Laboratory fee for nonmedical students, \$10. (Spring)
- 255 Basic Genetics (1)** Di Paolo
Introductory. Basic concepts in genetics: Mendelian inheritance, linkage, gene interaction, chromosome mapping, mutation, dominant and recessive genes. (Spring)
- 256 Human Genetics (1)** C.B. Jacobson
General principles of genetics, new cytogenetics technics, aneuploidy in man and its significance, biochemical aspects of heredity, genetic counseling. (Spring)
- 260 Electron Microscopy in Cellular Biology—Lecture (1)** Blanchette
Anatomy 260 may be taken without 261. (Spring)
- 261 Electron Microscopy in Cellular Biology—Laboratory (2)** Blanchette
Accompanies Anatomy 260. Prerequisite or concurrent registration: Anatomy 260. 12 students. Laboratory fee for nonmedical students, \$15. (Spring)

* Required for medical students.

- 262 Gross Anatomy of Upper and Lower Extremities (2)** Calabrisi
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned reading. 24 students. Laboratory fee for nonmedical students, \$10. (Spring)
- 264 Gross Anatomy of Head and Neck (2)** Christensen
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned reading. 24 students. Laboratory fee for nonmedical students, \$10. (Spring)
- 266 Gross Anatomy of Thorax and Abdomen (2)** Christensen
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned reading. 24 students. Laboratory fee for nonmedical students, \$10. (Spring)
- 268 Gross Anatomy of Pelvis, Perineum, and Lower Extremity (2)** Calabrisi
Detailed dissection, supplemented by X-ray anatomy; discussions, assigned reading. 24 students. Laboratory fee for nonmedical students, \$10. (Spring)
- 270 Dissection of the Human Brain (1)** Johnson
Dissection of major pathways and nuclei of the brain with consideration of ventricular system; conferences and assigned reading. 20 students. Laboratory fee for nonmedical students, \$10 (Spring)
- 272 Autonomic Nervous System (1)** Allan
Development, microscopic and gross anatomy, function of central and peripheral components of autonomic nervous system. (Spring)
- 274 Tissues of the Body (1)** Telford
Basic concepts in anatomy, with emphasis on primary tissues of the body—their histogenesis, growth, functions, regenerative capacities, aging, death. (Spring)
- 278 History of Anatomy and Surgery (1)** Goss
Lectures and discussions related particularly to the lives and times of outstanding contributors to the advancement of the science of anatomy and surgery. (Spring)
- 280 Regional Anatomy (5)** Calabrisi, Christensen
Advanced dissection of any region of the body. 8 juniors or seniors; 4-week elective periods. School of Medicine. (Spring)
- 281 Neonatal Anatomy (5)** Allan
Detailed dissection of newborn or late fetus. 4 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 282 Advanced Neuroanatomy (5)** Johnson
Detailed dissection of human adult brain. 5 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 283 Introduction to Neuroanatomical Research (5)** Johnson
Techniques and principles of research in neuroanatomy. 5 juniors or seniors; 4-week elective periods. School of Medicine (Spring)

284 Experimental Teratology (10)

Telford

Congenital abnormalities in animals induced by various experimental methods. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)

286 Microangiography and Microradiography (5)

Christensen

Intimate vasculature of selected organs by injection and radiography. 2 juniors; 4-week elective periods. School of Medicine (Spring)

287 Human Cytogenetics (5)

C.B. Jacobson

Chromosomal research on reproductive anomalies, congenital malformations, mutagenic assay. Tissue culture, photomicrography, karyotypic analysis, genetic counseling. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

295 Research (arr.)

Staff

Content differs each time course is offered; may be repeated once for credit. Fee to be arranged. (Fall and spring)

299-300 Thesis Research (3-3)

Staff

(Academic year—as arranged)

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

Anesthesiology*

Professors C.S. Coakley (*Chairman*), Seymour Alpert

Clinical Professor D.H. Stubbs

Associate Professors Paula Kaiser, Patricia Russell, B.S. Epstein, Marie-Louise Levy, Arthur Peschin

Assistant Professors Alice Altstatt, G.A. Morales, H.L. Rudman

Assistant Clinical Professors S.N. Albert, Maria Benzinger, W.E. Bageant, E.J. Dealy, C.E. Fierst

Instructor Hildegard Manitsas

†301 Anesthesiology (1)

Staff

Fundamentals of anesthesia reviewed and correlated with other medical specialties. (Spring)

380 Anesthesiology (5)

Coakley

Clinical preoperative evaluation, surgical and obstetrical anesthesia, infant and adult resuscitation, inhalation therapy. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

* Staff of Instruction for the academic year 1968-69.

† Required for medical students.

381 Anesthesiology (5) Bageant

Clinical preoperative evaluation, surgical and obstetrical anesthesia, infant and adult resuscitation; inhalation therapy; blood volume determinations. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

382 Clinical Anesthesia (5) Dealy

Surgical anesthesia, resuscitation, laryngoscopy, endotracheal technique, preoperative evaluation. 2 juniors or seniors; 4-week elective periods. V.A. Hosp. (Spring)

384 Anesthesiology Conference (2) Staff

Discussions and demonstrations of clinical problems in anesthesiology; emphasis on problems of anesthesia, resuscitation, inhalation therapy which may be encountered in any type of medical practice. 10 students. Univ. Hosp. (Fall)

Biochemistry*

Professor C.R. Treadwell (Chairman)

Professorial Lecturers Sidney Udenfriend (*Intermediary Metabolism*), W.W. Burr, Jr. (*Isotopes*), R.W. Albers, Roscoe Brady, Jr., Arnold Schaefer, Sidney Shifrin, Edward Steers, Jr., W.F. Anderson, Pedro Cuatrecasas (*Enzymology*), R.P. Erickson, H.L. Ozer

Associate Professors B.W. Smith, G.V. Vahouny, J.M. Bailey

Assistant Professor A.S. Brecher

Special Lecturers Walter Mertz (*Inorganic Metabolism*), Herbert Weissbach (*Vitamins*), J.C. Smith, Jr.

†201 Medical Biochemistry (8) Staff

Lectures and laboratory; emphasis on basic principles and their relation to medicine. (Fall)

221-22 General Biochemistry (4-4) Vahouny

For graduate students. Lectures and laboratory. Prerequisite: Chemistry 52, 54. Material fee. \$20 a semester. (Academic year)

224 Biochemistry of the Enzymes (1) Cuatrecasas

Biochemistry of enzymes and enzyme reactions. Prerequisite: Biochemistry 201 or 221. (Spring)

‡225 Biochemical Procedures (3) B. Smith and Staff

Laboratory course. Material fee for nonmedical students, \$16 a semester. (Fall and spring)

‡227 Biochemistry Seminar (1) Staff

Current literature in biochemistry, mainly for graduate students, but open to limited number of specially qualified medical students. (Fall and spring)

* Staff of Instruction for the academic year 1968-69.

† Required for medical students.

‡ Content differs each time the course is offered; may be repeated for credit

- 232 Proteins and Amino Acids (1)** Steers, Shifrin
Prerequisite: Biochemistry 221. (Spring)
- 241 Isotopes (3)** Burr
Theoretical characterization of isotopes and their applications in biology. Attention given to counting, health physics and radiation safety, autoradiography, chromatography. Laboratory fee for nonmedical students. \$16. (Spring)
- 251 Carbohydrate Metabolism (1)**
Prerequisite: Biochemistry 201 or 222. (1969-70 and alternate years—spring)
- 252 Biochemistry of the Brain (1)** Albers, Brady
For medical students; open to limited number of graduate students. Recent biochemical developments in structure, functions, and metabolic processes unique to the brain. (Spring)
- 254 Human Nutrition (1)** Pollack
For medical students; open to limited number of graduate students. Application of nutritional principles in humans. (Spring)
- 256 Biochemistry of Organ Function (1)** Kramer
For medical students; open to limited number of graduate students. Emphasis on biochemical processes unique to particular organ systems; application of these processes to evaluation of function. (Spring)
- 258 Inherited Metabolic Diseases (1)** Ozer, Erickson
For medical students; open to limited number of graduate students. Contribution of molecular biology to understanding of human mutations and hereditary diseases. Specific disease states and genetics of protein structure discussed. Prerequisite: Biochemistry 222. (Spring)
- 260 Biochemistry of the Steroids (1)** O. Dodek
For medical students; open to limited number of graduate students. Basic chemistry of the steroids, pathways of biosynthesis and metabolism, regulatory mechanisms, physiologic effects, clinical measurement of endogenous steroids, clinical manifestations of steroid imbalance, steroid changes in pregnancy, and steroid therapy. (Spring)
- *262 Biochemistry of the Lipids (1)** Vahouny
For graduate students; open to maximum of 15 medical students. Research techniques for study of lipid biochemistry. 1969-70 and alternate years: chemistry, properties, occurrence of important classes of biological lipids. 1970-71 and alternate years: metabolism of lipids, including digestion, energy production, biosynthesis, function in specialized tissues and subcellular structures. (Spring)
- 266 Biochemical Genetics (1)** Anderson
For medical students; open to limited number of graduate students. (Spring)

* Content differs each time the course is offered; may be repeated for credit.

- 279 **Research in Renal Function, Mutarotase, and Sugar Transport** (10) Bailey
Clinical significance of plasma mutarotase levels in kidney disease. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 280 **Research in Experimental Atherosclerosis** (10) Bailey
Study of factors influencing the development and course of atherosclerosis in rabbits. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 281 **Research in Biochemistry of Carbohydrates and Enzymes** (10) B. Smith
Research in a problem already under investigation in the Department or a project in related fields suggested by the student. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 282 **Research in Biochemistry of Lipid Metabolism and Transport** (10) Vahouny
Biochemical investigation of a clinical problem involving lipids of special interest to the student or participation in existing research program in the Department. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 283 **Research in Metabolic Regulation within the Heart** (10) Vahouny
Studies on metabolic regulation and effect of drugs. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 284 **Research on Proteolytic Activity in Tissues** (10) Brecher
Distribution, physical and chemical characterization of enzymes in mammalian tissue. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- 285 **Research on the Mechanism of Action of Anti-tumor Drugs** (10) Brecher
Study of the nature of the reaction of anti-tumor drugs and other alkylating agents with proteins and nucleic acids. 2 juniors or seniors; 8-week elective periods. School of Medicine (Spring)
- *295 **Research in Biochemistry** (arr.) Staff
For freshman and sophomore medical students and graduate students. Participation in a project under investigation in the Department or one in a related field suggested by the student and approved by the Staff. (Fall and spring—as arranged)
- 299-300 **Thesis Research** (3-3) Staff
- 398 **Advanced Reading and Research** (arr.) Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1969)
- 399 **Dissertation Research** (arr.) Staff
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

* Content differs each time the course is offered; may be repeated for credit.

Dermatology*

Professor R.S. Higdon (Chairman)

Clinical Professor J.Q. Gant, Jr.

Associate Clinical Professor Hayden Kirby-Smith

Assistant Professor Mervyn Elgart

Assistant Clinical Professors W.G. Ballinger, C.S. Brown, Manuel Landman.

P.L. Repetto, Jr., Donald Mitchell, L.E. Harman, Jr., C.S. Thurston

Clinical Instructors Phyllis Huene, L.J. Eanet, H.S. Golomb, Maria Turner

Special Lecturer Gerda Landman

†301 Dermatology (1)

Staff

Diseases of the skin. (Fall)

380 Dermatology Clinic (5)

Harman

Conferences, lectures, and attendance at Dermatology Clinic where patients with wide variety of dermatoses are seen. To acquaint student with diagnosis and treatment of common skin disorders. Dermatologic surgical procedures, technique for using liquid nitrogen, culture and identification of fungi, microscopic diagnosis of common cutaneous diseases. 2 juniors or seniors; 4-week elective periods. Walter Reed Gen. Hosp. (Spring)

381 Dermatology Clinic (5)

Thurston

Same as Dermatology 380. 1 junior or senior; 4-week elective periods. Andrews Air Force Base Hosp. (Spring)

Epidemiology and Environmental Health*

Professors J.W. Millar (Chairman), J.A. Halsted (International Health)

Clinical Professor Murray Grant (Community Health)

Professorial Lecturer Daniel Finucane

Associate Professors C.R. Hartman, G.L. Harper

Associate Clinical Professors David Frost, G.O. Pierce, Lewis Robbins, W.J. Zukel

Assistant Professor M.E. Landay

Assistant Clinical Professors Lawrence Pyle, Jr., John Vinyard, Jr., E.N. Kassira

Assistant Professorial Lecturers S.H. Barboo, Jr., C.H. Miller

†201 Introduction to Epidemiology and Environmental Health (2)

Millar and Staff

For medical students. Principles and methodology of epidemiology and biostatistics. Ecological approach to health and disease, including parasitology and mycology. (Spring)

217 Advanced Mycology (4)

Landay

Lecture (2 hours), laboratory (4 hours). Advanced study of fungi. Pre-requisite: Microbiology 211 or equivalent. Laboratory fee for nonmedical students, \$16. (Fall)

* Staff of Instruction for the academic year 1968-69.

† Required for medical students.

- 218 Advanced Parasitology (2)** Millar
Study of host-parasite relationships, including laboratory procedures. 10 sophomores or juniors. (Fall)
- 230 Statistics (2)** Staff
For graduate students. Application of statistical methods to health-related problems. Prerequisite: elementary college algebra. (Spring)
- 295 Research in Epidemiology (arr.)** Staff
Participation in experimental studies in infectious diseases and research in community medicine. 3 sophomores or juniors. (Fall)
- *301 Epidemiology and Environmental Health (1)** Staff
Lectures and seminars. Emphasis on means of organizing community to provide epidemiological solutions to health problems, developing an awareness of health resources and significant socioeconomic considerations in bringing total health to the community, showing importance of health as related to individual citizens. World health problems. Prerequisite for graduate students: Microbiology 211, 212; or equivalent. (Spring)
- 351 Global Epidemiology (1)** Staff
Geographic pathology of disease and international aspects of disease prevention and control, including world demographic problems. 20 sophomores or juniors. (Fall)
- 352 Experimental Epidemiology (1)** Staff
Seminar. Student participation in definitions, design, and methods for developing epidemiologic studies of diseases. Coordinated so that protocol developed can be applied to field use. 10 sophomores or juniors. (Fall)
- 353 Military Preventive Medicine (1)** Millar
Operational medicine, environmental and sanitation problems, epidemiologic diseases of military importance and their prevention and control. Medical aspects of aerospace and submarine medicine. Sophomores or juniors. (Fall)
- 380 Methods in Public Health (5)** Grant
Rotation through all divisions, including mental health, maternal and child health, environmental medicine, communicable diseases; field trips. (Spring)
- 382 Clinical Practice of Public Health (10)** Grant
Study in depth of public health practice, participating as member of a mobile unit screening for various diseases in the community. 1 junior or senior; 8-week elective periods. D.C. Dept. of Public Health (Spring)
- 384 Research in Public Health (10)** Staff
Supervised research; the student selects the topic from a broad range of public health problems, including mental health, maternal and child health, environmental medicine, epidemiological methods, biostatistics. 5 juniors or seniors; 8-week elective periods. (Spring)

* Required for medical students.

385 Studies in Cardiovascular Disease (5)

Zukel

Participation in one or more current studies at the National Heart Institute; selection by the student. 2 juniors or seniors; 4-week elective periods. (Spring)

386 Parasitic Diseases (5)

Hartman

Diagnosis, treatment, epidemiology, laboratory aspects of intestinal parasitic diseases; intensive instruction in sigmoidoscopy. 1 junior or senior; 4-week elective periods. (Spring)

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

Medical and Public Affairs*

Professor Murdock Head (Chairman)

Associate Professor C.W. Shilling

†301 Forensic Medicine (1)

Head and Trial Practice Court Judges

Four weeks of Law 385 *Trial Practice Court*. Practice court involving trial of medical malpractice cases. Junior medical students prepare and present the complaint and defense. (Fall—4 Saturday mornings)

351 Forensic Medicine (2)

‡Sharpe, Head

Open to junior medical students. Examples drawn from the range of problems arising when the professional interests of lawyers and physicians overlap. Problem contexts include malpractice, personal injury litigation, licensure and discipline, ethics and economics, hospitals and other institutions of practice, and compelled treatment. (Fall)

Medicine*

Professors T.M. Brown (Chairman), M.J. Romansky (Associate Chairman) L.K. Alpert, J.M. Evans, A.E. Parrish, F.W. Wolff, Halla Brown, Irene Tamagna, J.J. Feffer

Clinical Professors A.G. Prandoni, Herbert Pollack, J.J. Rheingold, T.S. Sappington, A.B. Rosenbaum, T.J. Greenwalt, F.L. Land

Associate Professors S.W. Bush, W.R. Felts, Jr., G.A. Kelser, Jr., M.H. Jacobson, Irene Siu, R.C. Fowler, Ariel Hollinshead (Research—Pharmacology), Mary Watt, N.C. Kramer, Milton Corn, Rashid Massumi, J.P. Nasou, C.A.

* Staff of Instruction for the academic year 1968-69

† Required for medical students

‡ Mr. Sharpe is Professor of Law in the University's National Law Center.

- Caceres, J.A. Curtin, J.K. Viktora (*Research—Biochemistry*). J.C. Penhos (*Research—Endocrine Research*). H.W. Clark, Jr. (*Research—Biochemistry*). D.J. Massaro, J.B. O'Connell
- Associate Clinical Professors* O.R. Farley, Janet Travell, Alfred Brigulio, Joseph Ney, J.W. Latimer, Jr., T.J. Abernethy, Benjamin Manchester, F.S. Bacon, L.E. Putnam, Elizabeth Hill, M.H. Stolar, S.J.N. Sugar, H.D. Ecker, C.W. Jones, C.W. Thompson, E.S. Gladsden, Maurice Mensh, F.J. Murray, E.P. Parker III, M.H. Rosenberg, Milton Gusack, Jack Kleh, H.M. Silver, J.P. Mann, Edward Adelson, R.R. Belton, S.D. Loube, Arthur Ruskin, C.A. Rosenberg, H.E. Tieckin, L.J. Thomas, W.O. Bailey, Jr., Ruth Benedict, L.S. Blumenthal, Louis Ross, S.W. Kustein, Israel Kessler, W.D. Brill, Marvin Fuchs, C.A. Schulman, Alfred Baer, Herbert Abramson, Bertle Nelson, J.H. Pert, J.M. Pisani
- Assistant Professors* Juan Calatayud, William Whitmore, Jr., F.A. Peck, P.A. Gorman, K.L. Becker, J.M. Bacos, J.D. Finkelstein, A.S. Gooch, Karl Wiplinger, J.S. Bailey (*Research—Microbiology*). B.F. Johnson (*Research—Clinical Pharmacology*). C.H. Oliver, Jr., T.R. Shworles (*Social Psychologist*). Henry Yeager, Jr.
- Assistant Clinical Professors* T.A. Gonder, David Horwitz, R.B. Castell, S.T. Gibson, M.H. Rose, Adolph Friedman, R.B. Miller, F.D. Chapman, R.G. Taylor, J.W. Long, Virginia Beelar, J.F. Ambury, T.L. Hartman, Boris Rabkin, L.A. Craig, Jr., A.W. Danish, Alvin Seltzer, J.W. Walsh, C.E. Law, E.L. Rea, Conrad Gossels, H.O. Mott, J.H. Watson, N.H. Rubenstein, W.L. Stone III, B.H. Ostrow, C.D. Cooper, S.C. Pascoe, W.R. Ehrmantraut, G.A. Chapman, F.M. Gross, Eleanor Makel, Silas Babin, Jr., Alice Brigham, Jack Crowell, D.S. Davis, J.H. Epstein, F.K. Harris II, R.F. Dyer, D.M. Tormey, E.H. Bauersfeld, William Lewis, E.J. Leonard, H.I. Passes, C.W. Foulke, A.A. Lear, O.W. Donnelly, R.S. Poole, H.C. Sadin, S.J. Talpers, W.L. Hall, George Sharpe, Raymond Scalett, M.A. Sislen, C.J. Savarese, Jr., G.C. Buchanan, G.T. Economos, Irwin Ardani, S.E. Barr, H.A. Moskovitz, J.T. Hagenbucher, G.N. Polis, W.F. Morrissey, Perry Hookman, R.A. Apter, M.S. Arntstein, J.E. Sauch (*Research*). Jean Lucas, B.R. Cooperman, A.W. McLaurin, Francis Chucker, Gilbert Hurwitz, R.S. Wilkinson, W.E. Gallinek, L.H. Biben, W.H. Harvey, William Kurstin, Dorothea Chapman, L.H. Fenton, F.J. Jansen, H.C. Alexander, Jr., C.W. Humphreys, Jr., Paul Schlein, D.J. Hand, Ruben Lopez-Toca, J.C. Rios, P.A. Haber
- Instructors* Ching-Hui Wu (*Research—Endocrine Research*). C.H. Chan (*Metabolic Research*). W.R. Ayers (*Research*). H.M. Hochberg (*Research*). Boris Vlalukin, Charlotte Berg (*Social Work*). W.S. Byers, A.M. Mondzac
- Clinical Instructors* N.K. Bohrer, N.G. Goodman, J.D. Herman, Sheldon Kress, Frederick Meyers, Lily Ruckstuhl, C.U. Shilling, H.O. Schindelar, R.M. Kaufman, Andre Barrabini, E.F. Aune, Robert Kramer, F.J. Borsody, Richard Schoenfeld, M.J. Halberstam, D.W. Datlow, G.G. Kay, R.A. Fischer, W.T. Moore, R.M. Huffman, E.B. Thompson, S.A. Lundberg, Florentino Palmon, G.B. Cushner, S.J. Conway, L.P. Appel, M.A. Herman, R.O. Knox, R.S. Waldman, R.W. Turner, C.W. Kinzer, S.A. Schwartz, T.D. Gelehrter, Andree Thomas, Marvin Schneider, Kenneth McIntosh, Fidel Quintana, Gladys Rosenstein, Herman Rosenstein, A.G. Brody, Harris Kenner, N.P. Trujillo, Philip Witorsch, I.V. Magal, G.A. Tralka, L.B. Sheiner, L.F. Barker, R.J. Lindeman, D.D. Haut, Isaac Weiszer, P.R. Lenz, A.J. Anderson, P.G. Rochmis, J.F. Mermel, Richard Hochman, D.M. Livingston,

J.C. Fratanoni, P.J. Sullivan, S.H. Schachner, M.F. Marmor, M.M. Shefferman, PooLiang Chang, E.J. Chap, L.M. Weiss, N.T. Connally, Bernard Grand, J.C. Perkins, J.J. Schneider

Special Lecturers Sol Katz (*Pulmonary Disease*), R.W. Berliner (*Renal Disease*), W.L. Nalls (*Pulmonary Disease*), Albert Sjoerdsma (*Internal Medicine*), D.S. Frederickson (*Internal Medicine*), Pierre Tulou, T.W. Mattingly (*Cardiology*)

***301 Physical Diagnosis (4)**

Putnam and Staff

Theoretical and practical application of principles of physical diagnosis; training with bed patients under individual instruction. Designed to develop ability in examination of patients and case history taking. Univ. D.C. Gen., and affiliated hosps. (Spring)

***302 Laboratory Medicine (2)**

Rheingold and Staff

Clinical application of laboratory examinations of blood, body fluids, exudates, etc. (Spring)

***303 Principles of Internal Medicine (2)**

Staff

Principles and practice of internal medicine. (Spring)

***304 Major Clinical Situations (Medicine) (4)**

Staff

Lectures and demonstrations on medical diagnosis and treatment. (Fall)

***305 Inpatient Clerkship I (10)**

T. Brown, Romansky, and Staff

Training in comprehensive study of patients; history and physical examination; ward rounds, consultations, conferences, preceptorial teaching, seminars. Univ. and D.C. Gen. hosps. (8-week periods throughout academic year)

***306 Inpatient Clerkship II (5)**

Hill, Apter, Katz, Curtin, and Staff

Continuation of Medicine 305. Fairfax and V.A. hosps. and Wash. Hosp. Center (Spring—4 weeks)

***308 University Clinics (10)**

Watt and Staff

Studies of ambulatory patients under close supervision. Daily clinics in general medicine and various specialties; conferences on current cases. Univ. Hosp. (8-week periods throughout academic year)

309 Medical Pulmonary Conferences (1)

Feffer, Silver

Weekly conference, primarily for interns and residents. 30 students. Univ. Hosp. (Fall)

310 Hematology Rounds (1)

Rheingold

Diagnostic and therapeutic evaluation of hospitalized patients with hematologic disorders. 6 students. Univ. Hosp. (Fall)

***312 Continuing Care Program (2)**

Tamagna, Wipplinger, and Interdepartmental Staff

Interdepartmental medical care program. Each student is responsible, under guidance and direction of preceptors, for diagnosis and care of three patients chosen from the disciplines of medicine, obstetrics, psychiatry, and pediatrics. Health maintenance, development of the family doctor-patient relationship stressed; introduction to use of community health resources. Univ. and Fairfax hosps. and Wash. Hosp. Center (Fall)

* Required for medical students.

- 313 **Special Topics in Medicine (1)** Pollack, N. Kramer, H. Brown
Application of principles of basic sciences to problems of clinical medicine. (Fall)
- 355 **Clinical Electrocardiography (1)** Calatayud
Basic principle of electrocardiography. Univ. Hosp. (Fall)
- 365 **Outpatient Gastroenterology (5)** Hookman
Participation in clinical and laboratory procedures, including esophageal manometry and gastric secretory studies, used in diagnosis of gastroenterologic diseases. 2 juniors or seniors; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 366 **Clinical Endocrinology (5)** Becker
Clinical experience—endocrinology, metabolism, and genetics. Student will be given opportunity to examine endocrine patients, make preliminary diagnoses, and assist in treatment. 1 junior or senior; 4-week elective periods. V.A. Hosp. (Spring)
- 367 **Research in Clinical Electrocardiography (10)** Calatayud
Active participation in research in clinical electrocardiography. Correlations of the ECG with clinical and/or pathological data. Prerequisite: Medicine 355. 1 junior or senior; 8-week elective periods. Univ. Hosp. (Spring)
- 368 **Biochemical Effects of Drugs in Man (5)** Viktora, Wolff
Correlation between clinical research at the bedside and laboratory experimentation. Participation in clinical and laboratory follow-up of patients. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)
- 369 **Metabolic Fate of Drugs in Animals and Man (10)** Viktora, Penhos, Wolff
Introduction to methods used in study of drug metabolism, qualitative and quantitative chromatography, organ perfusion studies. 4 seniors; 8-week elective periods. Wash. Hosp. Center (Spring)
- 370 **Inpatient Medicine (5)** Hill, Apter
Diagnostic studies and clinical management of bed patients on Medical Service; teaching rounds and conferences. 4 seniors; 4-week elective periods. Fairfax Hosp. (Spring)
- 371 **Arthritis and Rheumatic Diseases (5)** T. Brown, Bush, Felts, Oliver
Introduction to clinical problems in diagnosis and treatment of arthritis and rheumatic diseases, review of clinical and research procedures employed in laboratory. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)
- 372 **Clinical Renal Disease (5)** Parrish
Clinical and laboratory procedures for study of renal disease: ward rounds, consultations, conferences, seminars. 1 senior; 4-week elective periods. Univ. and D.C. Gen. hosp. (Spring)

- 373 Inpatient Medicine (5)** Romansky, Ticktin
Comprehensive study of patients on GWU Medical Service; ward rounds, consultations, seminars, conferences. 8 juniors or seniors; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 374 Clinical Microbiology (5)** Romansky
Clinical and laboratory problems in infectious diseases; rounds, conferences, seminars. 1 junior or senior; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 375 Studies in Hypertension (10)** Tamagna
Participation in care of inpatients and outpatients and in research projects. 1 junior or senior; 8-week elective periods. Univ. Hosp. (Spring)
- 376 Total Patient Care (10)** Tamagna
Teamwork program for total patient care, including clinical and psychologic studies and rehabilitation; group conferences; research studies. 1 junior or senior; 8-week elective periods. Univ. Hosp. (Spring)
- 377 Hepatic and Metabolic Diseases (5)** Ticktin
Clinical studies of patients with hepatic and pancreatic disease, endoscopy, splenoportography, liver biopsy; research studies in enzymes and ammonia metabolism in hepatic diseases. 2 junior or seniors; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 378 Endocrinology and Cancer Chemotherapy (5)** Alpert
Clinical and laboratory work; emphasis on endocrinology (and metabolism or cancer chemotherapy, depending on student's choice). 2 seniors; 4-week elective periods. Univ. Cancer Clinic (Spring)
- 379 Medical Engineering for Medical Students (10)** Fowler, Eisenberg*
Medical and engineering students will be paired whenever possible to provide a mutual introduction to the principles and practices of each discipline. Instruction will be provided through seminar and lecture periods and participation in current laboratory projects. Consultation with instructor required prior to enrollment. 2 juniors or seniors; 8-week elective periods. Univ. Hosp. (Spring)
- 380 Clinical Application of Tissue Immunology (5)** N. Kramer
Application of immunologic methods to study of human hypersensitivity states and metabolic diseases; serum proteins, including protein hormones and enzymes; research principles and methods. 3 juniors or seniors; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 381 Heart Disease: Electronics and Computers I (5)** Caceres
Intensive training in electrocardiography using computer interpretations. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. Heart Station (Spring)
- 382 Clinical Cardiopulmonary Physiology (10)** Massumi
Clinical and laboratory evaluation of cardiac and pulmonary problems; training in ECG, phonocardiography, cardiac catheterization, angiocardiography, pulmonary function testing. Research encouraged. 1 junior or senior; 8-week elective periods. D.C. Gen. Hosp. (Spring)

* Dr. Eisenberg is Associate Professor of Engineering and Applied Science in the School of Engineering and Applied Science.

- 383 **Laboratory Studies of Human Entero- and Respiratory Viruses (10)** McIntosh
Research program involving characterization of new entero- and respiratory viruses; rounds, conferences, seminars; laboratory techniques. 1 junior or senior; 8-week elective periods. N.I.H. (Spring)
- 384 **Inpatient Medicine (5)** Curtin
Clinical case studies, including histories and physical examinations, consultations, pathologic and radiologic follow-up; library assignments; ward rounds and conferences. 6 juniors; 4-week elective periods. Wash. Hosp. Center (Spring)
- 385 **Inpatient Medicine (5)** Katz
Team member in clinical program involving complete study of medical patients. Ward rounds, seminars, conferences. 2 seniors; 4-week elective periods. V.A. Hosp. (Spring)
- 386 **Inpatient Medicine and Medical Emergencies (5)** Curtin, Bacos
To prepare seniors for internship. Assignments to inpatient medicine (Intensive Care Unit) and emergency room; ward rounds and conferences, radiologic and pathologic follow-up; library assignments. 4 seniors; 4-week elective periods. Wash. Hosp. Center (Spring)
- 387 **Renal Diseases—Clinical Fluid and Electrolyte Problems (10)** Jacobson
Rounds, clinics, conferences, clinical research projects. 1 junior or senior; 8-week elective periods. Univ. Hosp. (Spring)
- 388 **Experience in Allergy (5)** H. Brown
Diagnosis and treatment of allergic states; skin, eye, and scratch tests; clinical and experimental studies; library assignments. 2 seniors; 4-week elective periods. Univ. Hosp. (Spring)
- 389 **Research (3)** Staff
Research project under supervision of members of Department of Medicine. Limited to juniors, Univ. and D.C. Gen. hosps. (Fall)
- 390 **Inpatient Medicine (10)** Evans, Byers
Comprehensive study of Medical Service patients; ward rounds, consultations, conferences, preceptorial teaching, seminars. 6 junior or seniors; 8-week elective periods. Univ. Hosp. (Spring)
- 391 **Clinical Cardiology (5)** Siu
Includes electrocardiography. 8 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)
- 392 **General Practice Preceptorship (5)** *J.P. Anderson
Preceptorship in small urban community general practice. 1 junior or senior; 4-week elective periods. Waynesboro, Va. (Spring)
- 393 **Clinical Hematology (5)** Corn
Clinical and laboratory studies of patients with hematologic disorders; bone marrow and peripheral blood smears, hemoglobin electrophoresis,

* Dr. Anderson is in private practice in Waynesboro.

evaluation of coagulation mechanism. 1 junior or senior; 4-week elective periods. D.C. Gen. Hosp. (Spring)

394 Clinical Cardiology (5)

Gooch

Diagnosis in heart disease; emphasis on clinical examination and electrocardiography. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. Heart Station (Spring)

398 Introduction to Cardiology (5)

Bacos

Clinical cardiology, correlating bedside approach to cardiovascular diagnosis with special diagnostic studies, including phonocardiography, atrial electrocardiography, cardiac catheterization, angiocardiology. 1 junior; 4-week elective periods. Wash. Hosp. Center (Spring)

399 Heart Disease: Electronics and Computers II (10)

Caceres

Research in one of the following areas—computer analysis of arrhythmias, correlation of ECG with autopsy data, ECG variability, ECG during exercise, instrumentation in blood pressure recording, computer analysis of pulmonary function tests, plethysmograph, phonocardiography, statistical analysis of ECG data, automatic identification of bacteria, computer analysis of electrophoretic curves. 4 juniors or seniors; 8-week elective periods. Univ. Hosp. Heart Station (Spring)

Microbiology*

Professors A.M. Griffin, Mary Louise Robbins, R.C. Parlett (*Chairman*), L.J. Griffith (*Visiting*), Rudolph Hugh

Professorial Lecturers F.B. Gordon (*Virology*), Dorothy Heilman (*Cellular Immunology*)

Associate Professor L.F. Affronti

Assistant Professors Melvin Reich, G.L. Wright, Jr., Yang-Ming Chu (*Research*), Kun-yen Huang

Assistant Professorial Lecturers P.J. Price, Rosalie De Giovanni-Donnelly
Lecturer E.L. Speck

†201 Medical Microbiology (6)

Parlett and Staff

For medical students; open to qualified graduate students. Bacteria, rickettsiae, viruses, yeasts, molds, protozoa, metazoa which relate to the health and disease of man—cultural studies, methods of diagnoses, theories. (Spring)

211 Microbiology (4)

Staff

For graduate students. Bacteria, fungi, rickettsiae, viruses. Prerequisite: any biological laboratory science, Chemistry 51-52 and 53-54. Laboratory fee, \$16. (Fall)

212 Pathogenic Microbiology (4)

Staff

For graduate students. Continuation of Microbiology 211; emphasis on harmful activities of microorganisms. Prerequisite: Microbiology 211 or equivalent. Laboratory fee, \$16. (Spring)

* Staff of Instruction for the academic year 1968-69.
† Required for medical students

- 214 **Tissue Cell Culture and Somatic Variation** (4) Chu, Price
Techniques of tissue culture and means of studying somatic variations.
Prerequisite: Microbiology 211, 212. (Spring)
- 225 **Microbial Physiology I** (3) Affronti, Reich
Biochemical features of various microorganisms—especially bacteria—described and compared with those of the animal cell. Prerequisite: Biochemistry 221–22. Microbiology 211 or equivalent recommended. (Fall)
- 226 **Microbial Physiology II** (3) Affronti, Reich
(Formerly Microbiology 227)
Interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Prerequisite: Microbiology 225 or permission of instructor. (Spring)
- 230 **Immunology** (4) Wright
For graduate students. Fundamental immunologic concepts. Serologic and immunologic procedures as applied to clinical and research situations emphasized in the laboratory. Prerequisite: Microbiology 212. Laboratory fee, \$16. (1970–71 and alternate years: fall)
- 231 **Cellular Immunology** (1) Chu, Parlett
Study of immunological functions of reticulo-endothelial tissues. (Fall)
- 233 **Molecular Biology of Viruses** (4) Huang, Robbins
Primarily for graduate students; open to qualified medical students. Biochemical and genetic characterization of viruses. Prerequisite: Microbiology 201 or 211. Laboratory fee for nonmedical students, \$16. (Fall)
- 235 **Systematic Bacteriology** (3) Hugh
History of bacterial classification, international rules of nomenclature as applied to bacteria, development of bacterial classification based upon relationships, survey of characteristics of bacterial groups. Prerequisite: Microbiology 212 or equivalent. (Fall)
- 251 **Bacteriology** (2) Hugh
Primarily elective course for medical students; open to graduate students. Clinical situations involving bacteriology. (Fall)
- 255 **Virology** (2) Robbins, Huang
Primarily elective course for medical students; open to graduate students. General principles of virology; emphasis on clinical situations. Prerequisite: Microbiology 201 or 212. (Fall)
- 257 **Immunochemistry** (3) Wright
Primarily for graduate students; open to qualified medical students. Biochemical, physiochemical, and genetic aspects of immunologically active substances. Prerequisite: Biochemistry 221–22 or equivalent. Microbiology 211, 212, and 230 recommended. Limited enrollment. (1969–70 and alternate years: spring)
- 258 **Microbial Genetics** (2) De Giovanni-Donnelly
For medical and graduate students. Survey of microbial systems that depict basic concepts of genetic principles. (Spring)

259 Mechanisms of Autoimmune Pathology (2)

Wright

Evaluation of current theories of autoimmunity, graft rejection, tumor immunity, delayed hypersensitivities, and heritable immunogenic defects. Prerequisite: Microbiology 231 or permission of instructor. (Fall)

277-78 Seminar: Microbiology (1-1)

Staff

(Formerly Seminar: Bacteriology)

For medical and graduate students. Required of graduate students. (Academic year)

280 Virology (10)

Robbins, Huang

Selected problems; library assignments, laboratory studies. 4 juniors or seniors; 8-week elective periods. (Spring)

281 Bacterial Physiology (5)

Reich, Affronti

Selected problems; library assignments, laboratory studies. 5 juniors or seniors; 4-week elective periods. (Spring)

282 Immunology (5)

Wright, Chu, Parlett

Research problems. 3 juniors or seniors, 4-week elective periods (Spring)

283 Bacteriology (10)

Hugh

Selected problems; library assignments, laboratory studies. 2 juniors or seniors; 8-week elective periods. (Spring)

284 Microbial Genetics (5)

De Giovanni-Donnelly

(Formerly Immunologic Characterization of Cell Lines in Tissue Culture (10))

Research problems. 3 juniors or seniors; 4-week elective periods. (Spring)

285 Immunologic Characterization of Cell Lines in Tissue Culture (10)

Chu, Price

(Formerly Microbiology 284)

Preparation of specific antigens from a cell strain and production of antibodies against this strain in appropriate mammalian host; identification of unknown cell types using tissue culture, serology, immunochemistry. 2 juniors or seniors; 8-week elective periods. (Spring)

286 Diploid Cell Lines in Tissue Culture (10)

Chu, Price

(Formerly Microbiology 285)

Mammalian cells growing on glass surfaces in various media, staining chromosomes and determining chromosome pattern and number, methods of cell preservation such as liquid nitrogen freezing. 2 juniors or seniors; 8-week elective periods. (Spring)

287 Transformation of Cells in Tissue Culture (10)

Chu, Price

(Formerly Microbiology 286)

Conversion of normal cell lines in tissue culture to heteroploid cell lines. demonstration of cancerous nature of transformation by inoculation of hamster cheek pouch. Polyoma virus and SB 40 used with various cell types, including human embryo. 2 juniors or seniors; 8-week elective periods. (Spring)

- 293-94 **Special Topics in Microbiology** (arr.) Staff
Selected topics in microbiology. (Academic year)
- 295 **Research in Microbiology** (arr.) Staff
Content differs each time the course is offered; may be repeated for credit.
(Fall and spring; summer 1969)
- 299-300 **Thesis Research** (3-3) Staff
(Academic year)
- 398 **Advanced Reading and Research** (arr.) Staff
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring; summer 1969)
- 399 **Dissertation Research** (arr.) Staff
Limited to Doctor of Philosophy candidates, May be repeated for credit.
(Fall and spring; summer 1969)

Neurology and Neurological Surgery*

Professors J.W. Watts (*Chairman*), Harold Stevens, R.S. Paine (*Pediatric Neurology*)
 Professorial Lecturers K.M. Earle, N.P. Goldstein
 Clinical Professors J.M. Williams, R.H. Groh, H.V. Rizzoli, H.H. Ammerman
 Associate Clinical Professors J.P. Murphy, L.G. Kempe
 Assistant Professors G.M. Fenichel, Emanuele Mannarino, M.N. Ozer
 Assistant Clinical Professors A.S. Dekaban, G.M. Swain, G.D. Weickhardt.
 Ntinos Myrianthopoulos, N.H. Horwitz, Ruth Jakoby, Virginia Duggins.
 Cosimo Ajmone Marsan, J.L. Fox, W.E. Porter, A.P. Hustead
 Instructors Karin Nelson, Mary Bazelon, Ann Barnet
 Clinical Instructors M.C. Korengold, Z.W. Sanders, R.H. Robertson, R.A. Mendelsohn, Kristof Abraham, J.W. Barrett, C.P.H. Carroll, E.C. Wilner

- †301 **Neurology and Neurological Surgery** (2) Stevens, Watts
Clinical lectures and demonstrations dealing with form and function of nervous system. Transition between basic sciences and clinical neurology and neurological surgery stressed and correlated. (Fall)

- 356 **Basic Neurology** (1) Stevens
Lectures and demonstrations on the form and function of the nervous system in the light of basic science problems; emphasis on diagnostic techniques. (Fall)

- 380 **Clinical Neurology and Neurosurgery** (5) Stevens, Ammerman
Clinical clerkship in neurology and neurosurgical service. Emphasis on neurologic examination; indications for special neurologic tests, e.g., arteriograms, pneumoencephalograms, etc.; and operative procedures. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

* Staff of Instruction for the academic year 1968-69.
 † Required for medical students.

381 Clinical Neurosurgery (5)

Kempe

Participation in all departmental activities: ward rounds, daily conferences, radiographic and pathologic studies, operating room procedures; emphasis on studies of cerebral circulation. 1 junior or senior; 4-week elective periods. Walter Reed Gen. Hosp. (Spring)

382 Pediatric Neurology (5)

Paine

Clinical clerkship in diagnostic study and care of inpatients and outpatients; conferences and teaching sessions. 2 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)

383 Clinical Neurology (5)

Porter

Emphasis on neurological examination and basic sciences, including neuroanatomy, as applied to clinical material. 2 juniors or seniors; 4-week elective periods. Walter Reed Gen. Hosp. (Spring)

384 Histochemical Techniques for Neurology (5)

Fenichel

Histochemical procedures, including quick freezing techniques, cryostat sectioning, and a variety of enzyme reaction stains. 1 junior or senior; 4-week elective periods. Children's Hosp. (Spring)

385 Clinical Neurosurgery (5)

Fox

Clinical clerkship will include experience with diagnostic procedures: arteriograms, pneumoencephalograms, myelograms, and assisting in operation room; conferences and ward rounds. 1 junior or senior; 4-week elective periods. V.A. Hosp. (Spring)

386 Clinical Neurology (10)

Goldstein

Clinical clerkship under close supervision of highly experienced clinicians and teachers. Trainees do own histories and physicals, attend rounds and conferences, assist in routine procedures. Abundant clinical material available. 2 juniors or seniors; 8-week elective periods. Mayo Clinic (Spring)

Obstetrics and Gynecology*

Professors John Parks, R.H. Barter, Roy Hertz (*Human Development*), J.G. Sites (*Chairman*)

Clinical Professors S.M. Dodek, J.A. Dusbabek

Associate Clinical Professors C.K. Fraser, J.K. Cromer, Edward Zimmermann, W.T. Lady, W.P. McKelway, J.W. Pearson, Jr., Shirley Martin, M.S. Kaufman, M.P. Footer, Donald Walters, J.M. Friedman, B.W. Richwine

Assistant Professors Benny Waxman, C.B. Jacobson

Assistant Clinical Professors Caroline Jackson, T.A. Wilson, J.R. Epstein, S.H. Shea, G.L. Jarvis, N.J. Price, J.C. Walsh, L.M. Liverett, Peter Soyster, H.P. Treichler, W.H. Cooper, I.W. Rovner, M.W. Sandmeyer, Jr., N.M. Tart, R.B. Nelson, Louis Goldstein, George Speck, H.E. Cross

Instructors J.L. Marlow, L.F. Arias-Bernal

Clinical Instructors A.S. Bright, Elizabeth Crisp, A.W. Winshel, S.M. Belinsky, R.V. Erkenbeck, E.E. Gahres, John Lukasik, D.R. Carlson, E.E. Cunniff

* Staff of Instruction for the academic year 1968-69.

ham, Geraldine Paul, L.Q. Pugsley, H.L. Kotz, O.I. Dodek, Jr., T.F. Blackwelder, M.H. Hird, S.F. Stewart, Jr., Josiah Sacks, J.R. Marshall, Philip Corfman, R.E. Badwey, G.R. Hewlett, E.W. Titus, Jr., T.H. Gresinger, J.A. Austin, B.C. Schwartz, J.M. Close, E.R. Kolvereid, D.M. Margulies, J.C. Skilling, S.D. Cooley, L.E. Fettig, G.D. London, H.S. Gates, Jr., R.W. Smith, W.D. Wallace, Jr., P.H. Perkins, R.M. Regan

*301 **Obstetrics and Gynecology (2)** Parks, Sites, Waxman
Lectures and demonstrations covering entire field; emphasis on clinical management. (Spring)

*302 **Major Clinical Situations (Obstetrics and Gynecology) (2)** Staff
Lectures and demonstrations covering diagnosis and treatment. (Fall)

*303 **Clinical Obstetrics and Gynecology (10)** Staff
Participation in all obstetrical and gynecological clinics, daily departmental conferences and ward rounds at University, Fairfax, and Columbia hospitals. Manikin demonstrations of mechanism of labor and various types of operative delivery. (Fall)

381 **Clinical Obstetrics (5)** Waxman, Sites
Participation in care of obstetrical inpatients. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

382 **Clinical Gynecology (5)** Waxman, Sites
Participation in care of gynecologic inpatients. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

383 **Clinical Obstetrics (5)** S. Dodek, Fraser
Includes prenatal clinics, lying-in periods, delivery and postpartum care; rounds, conferences, seminars. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

384 **Clinical Gynecology (5)** Cromer, Gahres
Case assignments, rounds and conferences, including tumor board; gynecologic pathology, preparation for surgery, attendance at surgery, post-operative care. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

386 **Inpatient Obstetrics and Gynecology (5)** Zimmermann
Supervised instruction in large military hospital: rounds and conferences. 4 juniors or seniors; 4-week elective periods. Walter Reed Gen. Hosp. (Spring)

388 **Clinical Obstetrics and Gynecology (5)** Soyster
All aspects of inpatient and outpatient obstetrical and gynecologic services: rounds, obstetrical-gynecologic conferences, gynecologic pathology conferences; obstetrical anesthesia; Emergency Room consultations. Home visits to selected patients with Health Department Nurse. 2 juniors or seniors; 4-week elective periods. Fairfax Hosp. (Spring)

389 **Clinical Obstetrics and Gynecology (5)** Marlow
Participation in patient care, rounds, and conferences. 2 juniors or seniors; 4-week elective periods. Columbia Hosp. (Spring)

* Required for medical students.

390 Obstetrical and Gynecological Conference (2)

Regular conferences designed primarily for medical students. Diagnostic and therapeutic problems in clinical obstetrics and gynecology. 5 juniors. Univ. Hosp. (Fall)

C. Jacobson

391 Cytogenetics (1)

Clinical chromosomal anomalies in man, experimental design and data analysis in cytogenetics, two cytogenetics techniques, sex chromatin analysis, tissue culture procedures. Special students admitted with approval of instructor. (Fall)

C. Jacobson

392 Reproductive Genetics (1)

For medical students; open to graduate students with permission of instructor. Lectures with guest speakers, covering current methodology. Emphasis on human infertility; clinical case presentation and review utilized whenever possible. Major topics: gametogenesis, *in vivo* gamete manipulation and fertilization, nidation, and selective factors in development. 25 juniors. Univ. Hosp. (Fall)

Legator

393 Mutation—Medical and Biological Significance (1)

Clinical significance of genetic change; classification of mutagenic agents, their mode of action and screening systems for suspected mutagens. Medical complications of human mutation, i.e., toxicity, carcinogenesis, teratogenesis, and reproductive lethality, will be discussed. 25 juniors. (Fall)

C. Jacobson

394 Genetic Counseling Clinic (1)

Participation in physical examination, pedigree review, special testing of patients referred for genetic counseling. Common types of genetic anomalies, diagnostic tests, thorough reproductive counseling. 4 juniors. Univ. Hosp. (Fall)

*Petersen

395 Gametogenesis (1)

For medical students; open to graduate students with permission of instructor. Seminar course with guest lecturers. Covers various clinical and experimental factors in gametogenesis. Emphasis on histogenesis of the gonads, environmental, and clinical variables in infertility. 25 juniors. Univ. Hosp. (Fall)

Waxman, Newman

396 Application of Pathology to Clinical Gynecology (1)

Case presentations of current gynecologic problems in hospital. Microscopic views of surgical specimens will be shown. Discussion of how the clinical findings and management of the case are related to the pathologic findings. 10 juniors. Univ. Hosp. (Fall)

Waxman

397 Sexual Preparedness for the Physician (1)

Lectures and discussions with a view to broadening the knowledge of the anatomy and physiology of the physical component of human sexual activity. Prepares the physician to discuss sexual behavior knowledgeably. 15 juniors. Univ. Hosp. (Fall)

* Dr. Petersen is a consultant to the U.S. Food and Drug Administration.

398 Gynecologic Cancer Clinic (1)

Waxman, McKelway

Attendance and participation in the gynecologic cancer outpatient clinic. Instruction is given in pelvic examination, Papanicolaou smear technique, biopsy of suspicious lesions, diagnosis and follow-up of cases of suspected and frank gynecologic malignancy. Discussions of treatment. 3 juniors. Univ. Cancer Clinic (Fall)

Ophthalmology***Professor J.W. McTigue (Chairman)****Clinical Professors** F.D. Costenbader, J.H. King, Jr., L.C. Moss, Benjamin Rones, M.M. Parks**Associate Professors** B.S. Fine, Bernard Wortman (*Research*)**Associate Clinical Professor** R.W. Wilkinson**Assistant Professors** H.A. Urweider, D.S. Friendly, H.S. Wicker, J.N. Goldman, Ronald Fishman**Assistant Clinical Professors** W.J. Romejko, W.P. Chalfant, Jr., R.E. duPrey, Robert Day, M.G. Alper, J.H. Lodge, W.B. Glew, J.T. Schwartz, K.A. Simon**Instructor** W.S. Gilbert**Clinical Instructors** J.R. Weimer, Stephen Pappas, Joanne Economon, D.K. Berler, R.S. Deitch, H.I. Rodman, A.L. Fjordbotten, George Liss, H.M. McAllister, L.E. Perraut, Victor Preziosi, H.J. Starr, D.L. VerLee, M.H. Zimmerman, Leonard Kogan, J.F. Nowell, M.F. Goldberg**281 Ophthalmic Pathology I (1)**

L. Zimmerman

Basic science aspects of diseases of the eye. (Spring)

282 Ophthalmic Pathology II (3)

L. Zimmerman

Diseases of the eye as revealed by gross and microscopic examination. 8 students. Armed Forces Inst. of Path. (Spring)

284 Ophthalmic Pathology III (5)

L. Zimmerman

Daily participation in an active service limited to pathology of the eye and its adnexa. Inflammatory, degenerative, and neoplastic diseases comprise the major categories. 1 junior or senior; 4-week elective periods. Armed Forces Inst. of Path. (Spring)

†301 Ophthalmology (1)

Staff

Basic principles of medical and surgical ophthalmology and neuro-ophthalmology. (Fall)

†302 Ophthalmology (OPD) (1)

Lodge

Clinical instruction in external examination of the eye; tonometry and funduscopy. Use of ophthalmological instruments. (Fall)

380 Clinical Ophthalmology (5)

Lodge and Staff

Observation of diseases of the eye and ophthalmic surgery in outpatients and inpatients; rounds, conferences, specialty clinics. 8 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

* Staff of Instruction for the academic year 1968-69.
† Required for medical students.

Orthopaedic Surgery*

Professor J.P. Adams (Chairman)

Clinical Professor J.S. Neviaser

Associate Professor Peter Kenmore

Associate Clinical Professors H.L. Feffer, L.T. Peterson, Charles Keck

Assistant Clinical Professors C.W. Metz, Jr., R.L. Dow, Byron Genner III, A.G. Herrington, R.H. Brown

Clinical Instructors Frances Brennecke, H.E. Lane, Jr., K.A. Peterson, L.A. Ottenritter, Ronald Ottenberg, E.L. Radin, H.S. Cattell, A.I. Dobranski (Anatomy), William Gilligan, B.P. Vitek

†301 Orthopaedics and Fractures (1)

Adams and Staff

Lectures and major clinical situations. Wash Hosp. Center (Fall)

380 Orthopaedic Surgery (5)

Adams and Staff

Rotating program: one week of adult office orthopaedics and surgery at University Hospital; one week of children's orthopaedics at Handicapped Children's Unit of D.C. General Hospital; one week of general orthopaedics at Walter Reed General Hospital and at Malcolm Grow Hospital, Andrews Air Force Base. 3 seniors; 4-week elective periods. (Spring)

381 Orthopaedic Surgery (5)

Kenmore and Staff

Participation in total care program of orthopaedic patients: daily rounds, conferences, seminars. 2 juniors or seniors; 4-week elective periods. V.A. Hosp. (Spring)

Otolaryngology*

Associate Clinical Professor J.J. McFarland, Jr. (Chairman)

Assistant Clinical Professors J.L. Levine, M.E. Krucoff, R.S. Page, Jr., J.A. Sabri, W.M. Tribble, B.M. Webb, R.L. Fields

Clinical Instructors I.S. Jaffee, R.D. Ralph, H.H.E. Scheidemandel, G.F. Miller, Jr., R.E. Pumphrey, Jr.

†301 Otolaryngology (1)

Staff

Lectures and demonstrations on anatomy, physiology, and diseases of the ear, nose, and throat. (Spring)

380 Otolaryngology (5)

McFarland

Care of inpatients and outpatients, diagnosis, and therapy: rounds and conferences. 8 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

* Staff of instruction for the academic year 1968-69.

† Required for medical students.

Pathology*

Professors T.M. Peery (*Chairman*), W.R. Duryee (*Research—Experimental*), F.N. Miller, Jr., William Newman, J.C. Smith
Clinical Professors L.E. Zimmerman (*Ophthalmic Pathology*), J.M. Blumberg, E.B. Helwig (*Dermatologic Pathology*), G.H. Reifstein, N.S. Irey
Associate Professors W.L. Marsh, Lois Platt (*Cytology*), Alexander Breslow
Associate Clinical Professors J.S. Howe, V.E. Martens, Theodore Winship, R.E. Palmer, W.J. Jaffurs
Assistant Professors F.S. Jannotta, S.G. Kent, Suzanne Hammersberg (*Medical Technology*)
Assistant Clinical Professors W.F. Enos, Cornelia Hoch-Ligeti, L.W. Fix, Grace Guin, E.H. Zeitler, Marjorie Williams, C.B. Cook, D.R. Parkinson, I.D. Godwin, M.A. Weinberger, Floris Garner (*Comparative Pathology*), Gloria Brennan
Clinical Instructor P.W. Lampert
Special Lecturer L.C. Johnson

115-16 Introduction to Medical Science (1-1) Marsh, Hammersberg, and Staff

Lectures for medical technology students on physiology, pathology, and medicine to accompany Pathology 119-20. (Academic year—1 hour a week)

117-18 Principles in Medical Technology (4-4) Marsh, Hammersberg, and Staff

For medical technology students. Theories, principles, sources of error of methods used in clinical chemistry, clinical bacteriology, serology, hematology, clinical microscopy. (Academic year—4 hours a week)

119-20 Medical Technology Laboratory (10-10) Marsh, Hammersberg, and Staff

Rotation through University Hospital pathology laboratories: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 12 weeks; blood bank, 6 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (35 hours a week for 50 weeks)

†‡201 Pathology (8) Staff

Inflammations, degenerations, malformations, trauma, neoplasms, pathology of organ systems; correlation with symptoms and physical signs. Gross and microscopic study of diseased tissues. Case studies. (Fall—12 hours a week)

‡202 Diagnostic Conferences (1) Smith, Gusack

Case studies demonstrating pathologic significance of major clinical symptoms and physical signs. (Spring—1 hour a week)

‡203-4 Clinicopathologic Conferences (0) Staff

Case histories presented and differential diagnosis discussed; clinical, laboratory, necropsy findings correlated. (Fall and spring during medical clerkship)

* Staff of Instruction for the academic year 1968-69.
 † Required for medical students

‡ Open to limited number of graduate students, with permission

- 252 Forensic Pathology and Medical Jurisprudence (1)** Miller
 Pathology of trauma and of chemical poisons. The physician in relation to the law; legal vs. ethical rights and responsibilities; investigation of death; legal problems in medicine. (Spring—1 hour a week)
- *256 Cells—Normal and Pathologic (1)** Jannotta, Duryee, Platt
 Normal and abnormal cell structure, function, reproduction. Practical problems of cellular diagnosis in cytogenetics, exfoliative cytology, bone marrow studies. (Spring—1 hour a week)
- 260 Obstetric and Gynecologic Pathology (1)** Jaffurs
 Organ changes in normal and abnormal pregnancy, including both the mother and the fetus. Diseases of female genital system. (Spring—1 hour a week)
- *262 Problems in Experimental Cellular Pathology (1)** Duryee
 Cytological and biochemical aspects of cellular function in relation to normal and selected pathological conditions. (Spring—1 hour a week)
- *271 Tissue Reactions to Drugs (1)** Irey
 Study of the problems involved in recognizing instances of untoward reaction to therapy. Case presentations. (Spring—1 hour a week)
- 272 Pathology in Medicine and Surgery (2)** Reifenstein
 Survey of current literature, with application of pathology to clinical medicine and surgery. Each student assigned an article a week, for study, written report, and group critique. (Fall and spring—2 hours a week)
- 274 Medical Pathology (2)** Staff
 Study of cases from the necropsy service at University Hospital, evaluating and interpreting gross and microscopic tissue changes and correlating them with clinical data. (Spring—2 hours a week)
- *276 Seminars in Pathology (2)** Peery and Staff
 Conferences on current topics in pathology, conducted by and primarily for residents in pathology. Each student teams up with a resident to prepare and present a seminar on a selected topic. Univ. Hosp. (Spring—2 hours a week)
- 279 Ophthalmic Pathology I (1)** Zimmerman
 Basic science aspects of diseases of the eye. (Spring—1 hour a week)
- 280 Surgical Pathology I (4)** Newman, Winship
 Surgical pathology service at University Hospital and Washington Hospital Center. Examining specimens from current surgical cases, correlating with clinical manifestation. Univ. Hosp. and Wash. Hosp. Center (Spring—6 hours a week)
- 281 Surgical Pathology II (2)** Newman, Winship
 All types of surgical specimens; individual instruction in gross and microscopic diagnosis and clinical interpretation. Univ. Hosp. and Wash. Hosp. Center (Fall—3 hours a week)

* Open to limited number of graduate students, with permission.

- 282 Ophthalmic Pathology II (3)** Zimmerman
Diseases of the eye as revealed by gross and microscopic examination. Concurrent requisite: Pathology 279. 6 students. Armed Forces Inst. of Path. (Spring—4 hours a week)
- 283 Anatomical Pathology Clerkship (5 or 10)** Peery and Staff
Necropsy and surgical pathology service. Prerequisite: Pathology 201. Graduate students receive 5 semester hours of credit for each 4-week period and may receive up to 30 semester hours of credit for 6 months full-time. (Medical students: spring—4 or 8 weeks. Graduate students: fall or spring—as arranged)
- 284 Ophthalmic Pathology III (5)** Zimmerman
Daily participation in service limited to pathology of the eye and its adnexa. 1 senior; 4-week elective periods. Armed Forces Inst. of Path. (Spring)
- 285 Clinical Pathology (10)** Martens
Selected techniques of clinical chemistry, hematology, bacteriology. Student selects laboratory problem. 4 juniors or seniors; 8-week elective periods. Wash. Hosp. Center (Spring)
- 286 Biophysics: Electron Microscopy (10)** Zeitler
Basic electron microscopy; preparation of tissues, alignment procedures, image interpretation. 2 juniors or seniors; 8-week elective periods. Armed Forces Inst. of Path. (Spring)
- 287 Clinical Pathology (5)** Marsh, Breslow
Techniques in the clinical laboratory and interpretation of results, follow-up studies. 1 junior or senior; 4-week elective periods. Univ. Hosp. (Spring)
- 288 Clinical Cytology (5)** Platt
Evaluation of cytologic smears, chiefly vaginal, as a screening procedure in cancer diagnosis. 1 junior or senior; 4-week elective periods. Univ. Cancer Clinic (Spring)
- 290 Clinical and Anatomical Pathology (5)** Cook
Daily studies of surgical and necropsy pathology, including forensic pathology; clinical pathology projects, including hematology, isotopology, bacteriology. 1 junior or senior; 4-week elective periods. Fairfax Hosp. (Spring)
- 291 Experimental Cell Pathology: Cancer Research (5)** Duryee
Experimental animal tumors; tissue culture, histological and cytological techniques, library assignment. 1 junior or senior; 4-week elective periods. Univ. Cancer Clinic (Spring)
- 292 Experimental Pathology: Enzymatic Changes in Human Tissues (5)** Hoch-Ligeti
Distribution and concentration of lactic dehydrogenase, beta glucuronidase, and their isoenzymes in human tissues; limited participation in routine studies in pathology. Room and board furnished. 2 juniors or seniors; 4-week elective periods. V.A. Center, Martinsburg, W.Va. (Spring)

* Open to limited number of graduate students, with permission.

293 Clinical and Anatomical Pathology (5)

Palmer

Participation in departmental activities, including clinical, surgical, and autopsy pathology; medico-legal autopsies. 1 junior; 4-week elective periods. Alexandria Hosp. (Spring)

294 Surgical Pathology III (5)

Winship

Preoperative examination of patients with tumors, pathologic examination of excised lesions; teaching conferences. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

295 Comparative Pathology (5 to 30)

Garner and Staff

For graduate students. Participation in veterinary pathology service, including wild and domestic animals. Prerequisite: Pathology 201. Five semester hours of credit for each 4-week period. Students may receive up to 30 semester hours of credit for 6 months full-time. Armed Forces Inst. of Path. (Fall or spring)

296 Surgical Pathology IV (5)

Newman

Evaluation of surgical specimens and correlation with clinical status of patient, description of gross and microscopic findings on assigned cases. 2 seniors; 4-week elective periods. Univ. Hosp. (Spring)

298 Necropsy Pathology (5)

Jannotta

Organ changes in disease, gross and microscopic examinations, preparation of protocols. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

299 Dermal Pathology (5)

Helwig

Microscopic conferences, review of current material and study sets. 2 juniors or seniors; 4-week elective periods. Armed Forces Inst. of Path. (Spring)

398 Advanced Reading and Research (arr.)

Staff

Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

399 Dissertation Research (arr.)

Staff

Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

Pediatrics*

Professors R.S. Lourie (*Psychiatry*), F.P. Heald (*Chairman*)

Clinical Professors W.S. Anderson, R.H. Parrott, L.E. Hoeck, W.A. Howard.

J.A. Washington, Lois Murphy (*Child Development*)

Associate Professors L.P. Scott III, Margaret Gutelius, S.L. Leikin, E.V. Soto.

J.C. Houck (*Biochemistry*), A.M. Margileth, Gordon Avery, Wellington

Hung, Leon Cytryn (*Psychiatry*), Ruth McKay (*Psychiatry*), Dorothy Hunt-

ington (*Research—Child Development*), Rebecca Rieger (*Research—Child Development*), A.F. North, Jr.

* Staff of Instruction for the academic year 1968-69.

Associate Clinical Professors T.E. Reichelderfer, William Stark (*Psychiatry*), S.I. Wolf, A.B. Coleman, Bennett Olshaker (*Psychiatry*), Sara Saltzman (*Child Development*)

Assistant Professors J.R. Puig, Nasser Movassaghi, C.A. Rigg, W.H. Barton (*Psychiatry*), I.W. Perry, Willard Blankenship, C.M. Berlin, Jr., L.M. Greenberg (*Psychiatry*), S.A. Fagen (*Research—Child Development*), Rona Fisher (*Research—Child Development*), Elsa Greenberg (*Research—Child Development*), Ann Lodge (*Research—Child Development*), Lovisa Tatnall (*Research—Child Development*), A.C. Chung (*Biochemistry*), H.B. Richardson, Jr.

Assistant Clinical Professors Mabel Grosvenor, R.E. Martin, J.H. Peacock, Jr., Mary Sartwell, C.F. Stiegler, H.G. Clark, Adrian Recinos, Jr., C.R. Webb, A.R. MacPherson, G.J. Cohen, Stephen Mourat (*Psychiatry*), A.P. Simopoulos, Erwin Friedman (*Psychiatry-Psychology*), Arthur Oleinick, A.J. Modlin, Belinda Straight (*Psychiatry*), A.E. Marans (*Psychiatry*), Elma Denham (*Psychiatry*), M.S. Glatt (*Psychiatry*), Mary Robinson (*Child Development*)

Instructors S.I. Granger, Beneta Peacock, E.N. Kraybill, M.W. Werthmann, Jr., Sharon Kempf (*Child Development*)

Clinical Instructors H.H. Diamond, R.H. Mitchell, R.O. Warthen, Emilie Black, R.H. Anderson, W.G. Preisser, H.T. Yates, Roger Bergstrom, Mary Fox, S.Z. Goldblatt, Hilary Millar (*Psychiatry*), Harold Plotsky (*Psychiatry*), Jean Lockhart, G.W. Daisley, Jr., Agnes Schweitzer, G.W. Hardman, Jr., H.D. Knox, Frances Min, B.H. Ong, H.R. Gold, V.L. Guandolo, Iradj Mahdavi, J.L. Chamberlain III, Leonard Lefkowitz, K.G. Kassebaum, H.W. Rice, D.A. Young, J.A. Anderson

Special Lecturer G.A. Balfour

***301 Pediatrics (1)**

Heald and Staff

Lectures and demonstrations on pathophysiology of the newborn. Infant nutrition; fundamentals of disease states in infants and children. Wash. Hosp. Center (Spring)

***302 Major Clinical Situations (Pediatrics) (2)**

Heald and Staff

Lectures and demonstrations on pediatric diagnosis and treatment. Children's Hosp. (Fall)

***303 Pediatric Clerkship (10)**

Heald and Staff

Full time, including night and holiday admissions, as part of Resident team; ward rounds; work in outpatient department and specialty clinics under Staff supervision; child psychiatry and child guidance, lectures, clinical conferences, grand rounds. Children's Hosp. (Fall and spring)

***304 Growth and Development (1)**

Heald and Staff

Prenatal, perinatal, postnatal factors influencing growth and development of the infant. Social, emotional, physical growth of infant and child. (Spring)

380 Clinical Pediatrics (5)

Margileth, Puig

Participation in diagnostic studies and therapeutic procedures, rounds and conferences. 4 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)

* Required for medical students.

- 381 Pediatric Allergy (10)** Howard
Introduction to pediatric allergy, clinics and wards, some experience in experimental techniques and preparation of extracts. 1 junior or senior; 8-week elective periods. Children's Hosp. (Spring)
- 382 Pediatric Radiology (5)** LoPresti
Diagnostic and therapeutic radiology, diagnostic procedures. 2 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)
- 384 Newborn and Premature (10)** Blankenship and Staff
Clinical studies in newborn care emphasizing hematologic problems and congenital malformations; daily rounds, conferences, research studies in cytogenetics. 2 juniors or seniors; 8-week elective periods. Univ. Hosp. (Spring)
- 385 Child Psychiatry (5)** Lourie
Diagnostic and follow-up studies on inpatients and outpatients; rounds, conferences, seminars; visits to related community facilities. 2 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)
- 386 Pediatric Hematology (5)** Leikin
Clinical and laboratory studies of infants and children with hematologic disorders, bone marrow examinations, exchange transfusions. 1 senior; 4-week elective periods. Children's Hosp. (Spring)
- 387 Clinical Pediatrics (5)** Soto
Care of newborn and children on inpatient basis; diagnostic studies, therapy; assigned reading. 2 juniors or seniors; 4-week elective periods. Fairfax Hosp. (Spring)
- 389 Pediatric Cardiology (5)** Scott, Perry
Physical diagnosis of congenital and acquired heart diseases, interpretation of electrocardiograms and vectorcardiograms, cardiac catheterizations. Prerequisite: 1 month clerkship in medicine. 2 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)
- 390 Birth Defects Clinic (1)** Paine and Staff
Outpatient service for infants and children with various congenital defects. 2 juniors. Children's Hosp. OPD (Fall)
- 391 Pediatric Research (5 or 10)** Houck, Heald, and Staff
Pathophysiology and molecular biology of human growth and development. 2 juniors or seniors; 4- or 8-week elective periods. Children's Hosp. (Spring)
- 392 Adolescent Medicine Clerkship (5 or 10)** Heald, Rigg
Study of the normal developmental problems of adolescence. Experience in the medical care of adolescents. 2 juniors or seniors; 4- or 8-week elective periods. Children's Hosp. (Spring)
- 393 Nursery Grand Rounds (1)** Avery
Discussion of selected cases from sick infant nursery. Eye examinations on nursery with ophthalmologists. Death review conference. 2 juniors. Children's Hosp. (Fall)

394 Clinical Pediatrics (2)

Margileth

Two clinics—3 or 4 hours each session, with one-hour periods of (1) comprehensive care rounds, (2) case presentations, (3) adolescent dermatology and diabetic clinics, (4) pathology (mortality review), and (5) X-ray conferences. 6 juniors. Children's Hosp. (Fall)

395 Adolescent Medicine (1)

Rigg

Adolescent consultation clinics in renal diseases on first Thursday of each month, neurological diseases on second and fourth Thursdays, and gastroenterological diseases on third Thursday. 2 juniors. Children's Hosp. (Fall)

396 Mental Retardation (2)

Cytryn, Friedman

Diagnostic evaluation of mentally retarded children and adolescents. Didactic lectures concerning various aspects of mental retardation. 2 juniors. Jewish Foundation for Retarded Children (Fall)

397 Epidemiology of Childhood Diseases (2)

Oleinick

Emphasis on hypothesis development, data collection, and presentation of results and conclusions utilizing hospital records as source material. The epidemiology of childhood malignancies and congenital defects will be stressed. Admission by permission of instructor. 3 juniors. (Fall)

Pharmacology*

Professor H.G. Mandel (*Chairman*)

Professorial Lecturers B.B. Brodie, F.E. Hahn

Associate Professors V.H. Cohn, Jr., Paul Mazel, K.S. Kim (*Research*), S.E. Fabro (*Research*), W.R. Jondorf (*Research*)

Assistant Professors G.A. Hahn (*Research*), Philip Klubes (*Research*), J.A. Straw

†201 Pharmacology (8)

Mandel and Staff

Lectures, laboratory, conferences on interaction of drugs and biological systems as a basis for rational therapy of disease. Prerequisite: biochemistry and physiology, or approval of Department. (Fall)

252 Seminar: Clinical Pharmacology (2)

Problems in therapeutics; emphasis on drugs used in treatment of cardiovascular and infectious diseases. Participation in discussions and preparation of lectures. Enrollment limited. (1970-71 and alternate years—spring)

254 Frontiers in Pharmacology (1)

Mandel and Staff

For medical and graduate students. Recent advances and fields of research in pharmacology. Most of the material presented by laboratory scientists from neighboring institutions. (Spring)

256 Molecular Pharmacology (2)

F. Hahn

For medical and graduate students. Current theory on action of drugs, especially chemotherapeutic agents, at molecular level. Effect of drugs on

* Staff of instruction for the academic year 1968-69.

† Required for medical students; open to graduate students.

biosynthetic processes of the cell with respect to DNA, messenger RNA, transfer RNA, ribosomes, protein, cell wall, and intermediary metabolites. Factors which alter action of drugs, such as drug interactions and resistance. (Spring)

- 258 Cancer Chemotherapy (1)** Mandel and Staff
For medical and graduate students. Mechanisms by which drugs inhibit the growth of tumor cells. (1970-71 and alternate years—spring)

- 264 Pharmacological Research (6)** Staff
Metabolism of narcotic and nonnarcotic analgesic agents, metabolism and mechanism of action of antibiotics and anticancer drugs, protein synthesis, molecular pharmacology, pharmacogenetics, adaptation in drug metabolism. 3 sophomores. (Spring—2 full days a week)

- *267 Pharmacological Research (arr.)** Staff
For graduate students. (Fall and spring)

- *269 Pharmacology Seminar (1)** Staff
For graduate students. Recent advances in pharmacology. (Fall and spring)

- 272 Physiological Disposition of Drugs (3)** Cohn
For medical and graduate students. Fate of drugs in biological tissue. Absorption, distribution, chemical alteration, excretion of drugs; physical, chemical, and biological factors affecting these processes. Limited to 20 students. Prerequisite: Pharmacology 201. (1969-70 and alternate years—spring)

- *279 Special Topics in Pharmacology (arr.)** Staff
Selected aspects of drug action. (Fall and spring)

- 281 Physiological Techniques in Pharmacology—Lecture (2)** Mazel, Straw
For medical and graduate students. Physiological techniques for obtaining information on mechanism and site of action of pharmacological agents. Limited to 20 students. Pharmacology 281 may be taken without 282. Prerequisite: Pharmacology 201. (1969-70 and alternate years—spring)

- 282 Physiological Techniques in Pharmacology—Laboratory (2)** Mazel, Straw
Accompanies Pharmacology 281. Prerequisite: Pharmacology 201. Prerequisite or concurrent registration: Pharmacology 281. (1969-70 and alternate years—spring)

- 283 Biochemical Techniques in Pharmacology (3)** Cohn
Graduate students. Lectures and laboratory. Theory and practice of modern biochemical techniques applicable to study of metabolic fate and mechanism of action of drugs. Prerequisite: Pharmacology 201. (1970-71 and alternate years—spring)

- 285 Readings in Pharmacology (1)** Staff
For medical students. Assigned reading and preparation of report. (Fall and spring)

* Content differs each time the course is offered; may be repeated once for credit toward a Master's degree

286 Research in Pharmacology (arr.) **Staff**
For medical students. Participation in experimental studies in pharmacology, particularly bacterial chemotherapy, cancer chemotherapy, or drug metabolism. (Fall and spring)

299-300 Thesis Research (3-3) **Staff**
Required of Master's candidates. (Academic year—as arranged)

398 Advanced Reading and Research (arr.) **Staff**
Limited to students preparing for the Doctor of Philosophy general examination. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

399 Dissertation Research (arr.) **Staff**
Limited to Doctor of Philosophy candidates. May be repeated for credit. (Fall and spring—as arranged; summer 1969)

Physical Medicine and Rehabilitation*

Clinical Professor Morton Seidenfeld (Clinical Psychology)
Associate Professors John Watt, Jr. (Acting Chairman), A.F. Mastellone
Associate Clinical Professor Inez Hill
Assistant Clinical Professors P.A. Klieger, Giuseppe Balsamo, A.B.C. Knudson, F.L. Wenger, G.J. Thorpe, Gloria Eng

†301 Advanced Physical Medicine (1) **Staff**
Lectures and demonstrations on various techniques. Clinical applications of physical medicine and rehabilitation integrated with teaching of associated medical and surgical specialties. (Spring)

352 Physical Medicine and Rehabilitation (5) **Watt**
Participation in departmental procedures: examination and evaluation of patients requiring rehabilitation. 3 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

380 Physical Medicine (2) **Watt**
Participation in clinical service for diagnosis and treatment of neuromuscular, skeletal, visceral disorders by physical means. 4 juniors. (Fall)

395 Research (arr.) **Staff**
(Fall)

Physiology*

Professors C.S. Tidball (Chairman), R.A. Kenney (Visiting)
Professorial Lecturer Leonard Laster
Associate Professors Elizabeth Tidball (Research), Shirley Johnson (Research), Marie Cassidy

* Staff of Instruction for the academic year 1968-69.
† Required for medical students.

Associate Professorial Lecturers P.G. Nelson, Q.L. Hartwig, R.J. Podolsky,
W.A. Hagins, R.H. Adamson
Assistant Professors Elizabeth Stephenson, T.K. Chowdhury, M.J. Jackson
Assistant Professorial Lecturer W.L. Haskell
Instructor R.A. Lavine
Lecturer R.T. Moxley III
Special Lecturers L.L. Langley, H.J. Zimmerman

191 Selected Topics in Human Structure and Function (3)

Kenney

Lecture (2 hours), laboratory (1 hour). A required course for graduate students who have not had Anatomy 201 or equivalent. Content of this course is on the undergraduate level; students may receive graduate credit on completion of additional work as prescribed by the instructor. Structure and functional basis of physiology. Prerequisite: Biological Sciences 1-2 or equivalent and consent of instructor. Open to Columbia College of Arts and Sciences students only with the approval of the student's major adviser. (Fall)

***201 Physiology (8)**

Staff

Lecture (8 hours), laboratory (6 hours), conference (1 hour). Cellular, organ system, and applied mammalian physiology. Prerequisite for graduate students: Anatomy 201 or Physiology 191, or equivalent; Biochemistry 201 or 221-22 (Biochemistry 222 may be taken concurrently); or consent of Chairman of Department. Nonmedical students please note that the first meeting of the course occurs one week before the start of University campus classes. (Spring—day)

†221 Seminar (1)

Stephenson

Staff and student presentations from literature. Present work discussed, experimental design and scientific deduction evaluated. Topics to be announced. Prerequisite: a reading knowledge of French or German. (Fall and spring)

251 History of Medicine (1)

E. Tidball

Survey of the great contributors to physiology and medicine in the context of the times in which they lived and worked. (Fall)

252 Physiological Basis of Sexuality (1)

Staff

Conference 1 hour a week. Human reproduction, neonatal changes, contraception, sterility; their implications on patient counseling. (Fall)

253 Clinical Applications of Physiology (1)

C. Tidball

Conference 1 hour a week. Emphasis on acid-base and fluid-balance physiology and its relation to clinical problems. (Fall)

255 Introduction to Electrocardiography (1)

Caceres

Offered jointly by Department of Physiology and the Public Health Service Instrumentation Field Station. Cardiac electrical activity, means used to record it, application of these principles to diagnosis of cardiac disease. (Fall)

* Required for medical students; open to graduate students. Physiology 201 or equivalent is prerequisite to all Physiology courses numbered above 200.
† Content differs each time the course is offered; may be repeated for credit.

- 259 Introduction to Electron Microscopy (3)** Cassidy
Lecture (2 hours), laboratory as arranged. Basic theory of electron microscopy and its application to biological investigative studies. Limited registration. Admission by permission of instructor. (Fall)
- 261 Gastrointestinal Physiology (2)** Staff
Lecture or conference 2 hours a week. Physiological approach to such clinical problems as peptic ulcer, malabsorption, ulcerative colitis, hepatitis, and others. (Not offered 1969-70)
- 262 Cardiovascular Physiology (2)** E. Tidball
Lecture or conference 2 hours a week. An overview of cardiovascular physiology at an advanced level. (Not offered 1969-70)
- 263 Endocrine Physiology (2)** Jackson
Lecture or conference 2 hours a week. Basic physiology underlying clinical derangements involving abnormal endocrine function. (Not offered 1969-70)
- 264 Advanced Physiology of Metabolism (2)** Laster
(Formerly *Introduction to Experimental Medicine*)
Conferences on basic and clinical research which have brought new understanding to disease states characterized by inborn errors of metabolism. (Fall)
- 266 Current Areas of Clinical Investigation (2)** Johnson
(Formerly *Physiology of Blood*)
Conferences by members of the staff of the Veterans Administration Hospital, Washington, D.C. Topics include hemostasis and thrombosis, blood groups and transfusion practice, shock, immunological competence, insulin metabolism, intestinal absorption, methionine metabolism, and surfactant. V.A. Hosp. (Fall)
- 267 Renal Physiology (2)** Kenney
Lecture or conference 2 hours a week. An overview of renal physiology at an advanced level. (Fall)
- 271 Electronic Instrumentation (3)** Chowdhury
Lecture (2 hours), laboratory (2 hours). Fundamentals of electronics and their application to the measurement of physiological phenomena. Prerequisite: Mathematics 22; Physics 1, 2; and consent of instructor. (1969-70 and alternate years: fall)
- 272 Mammalian Radiophysiology (1)** Jackson
Lecture or conference 1 hour a week. Basic physiology of radiation lethality. (1970-71 and alternate years: fall)
- 281 Experimental Gastrointestinal Physiology (5)** C. Tidball
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 282 Experimental Cellular Physiology (5)** Cassidy
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)

- 283 Experimental Neuroendocrinology (5)** E. Tidball
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 284 Experimental Biophysics (5)** Chowdhury
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 285 Experimental Hematology (5)** Johnson
2 juniors or seniors; 4-week elective periods. V.A. Hosp. (Spring)
- 286 Experimental Renal Physiology (5)** Kenney
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- 287 Experimental Electron Microscopy (5 or 10)** Cassidy
2 juniors or seniors; 4- or 8-week elective periods. School of Medicine (Spring)
- 288 Experimental Muscle Physiology (5 or 10)** Stephenson
2 juniors or seniors; 4- or 8-week elective periods. School of Medicine (Spring)
- 289 Experimental Nutrition and Metabolism (5)** Jackson
2 juniors or seniors; 4-week elective periods. School of Medicine (Spring)
- *295 Research (arr.)** Staff
By special arrangement with individual staff members. Approximately 4 clock hours in the laboratory for each semester hour credit. (Fall and spring; summer 1969)
- 298 Comprehensive Physiology (2)** Staff
Guided review of selected areas of physiology appropriate to the student's graduate program. This course satisfies the requirements for the Master's Comprehensive Examination, the Field Examination for doctoral students minoring in physiology, and Part I of the Cumulative General Examination in Physiology. Prerequisite or concurrent registration: Physiology 221. (Fall—as arranged)
- 299-300 Thesis Research (3-3)** Staff
- 396 Advanced Reading and Research (2)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. Tutorial literature survey of a subfield of physiology and of pertinent areas of the candidate's minor field. This course satisfies the requirement for Part II of the Cumulative General Examination in Physiology. (Fall and spring—as arranged; summer 1969)
- 398 Development of Dissertation Problem (2)** Staff
Limited to students preparing for the Doctor of Philosophy general examination. Preparation for written and oral presentation of dissertation problem. This course satisfies the requirement for Part III of the Cumulative General Examination in Physiology. (Fall and spring—as arranged; summer 1969)

* Content differs each time the course is offered; may be repeated for credit.

399 **Dissertation Research** (arr.)

Staff

Limited to Doctor of Philosophy candidates, May be repeated for credit.
(Fall and spring—as arranged; summer 1969)

Psychiatry*

Professors Leon Yochelson (*Chairman*), J.E. Rankin

Clinical Professors D.C. Cameron, D.M. Bullard, T.D. Noble, Sidney Berman, Morris Kleiner, M. deG. Ruffin, Norman Taub, Samuel Yochelson (*Criminal Behavior*), D.L. Bazelon (*Socio-legal Aspects*), Leon Ferber, P.H. Gray, Paul Chodoff, H.A. Meyersburg, F.N. Waldrop, Stanley Yolles, Edwin Schneidman (*Suicidology*)

Associate Clinical Professors H.P. Laughlin, M.L. Adland, Anna Todd, S.L. Werkman, I.H. Kaiser, C.T. Bever, David Eden, Margaret Mercer (*Clinical Psychology*), S.I. Szara (*Psychopharmacology*), Hans Weil-Malherbe (*Neurochemistry*), Harold Weiner (*Experimental Psychology*), G.C. Salmoiraghi (*Neurophysiology and Neuropharmacology*), J.G. Rubin, E.S. Fleming, Joseph Abrahams, R.M. Greenberg, W.D. Kehne, A.M. Drummond, J.L. Sheridan, D.W. Harris, E.I. Kushner, J.H. Yacoubian, Jack Durell, John Kafka

Assistant Professors Helen Percy (*Social Work*), H.M. Grigorian, R.M. Coleman

Assistant Clinical Professors Sarah Tenenblatt, J.B. Chassan (*Biostatistics*), R.A. Rogers, J.A. Farrell, H.B. Lehrman, N.C. Rintz, F.G. Hilkert, J.T. English, Susannah Gourevitch (*Psychology*), I.D. Milowe, I.H. Marill, W.C. Johnson, R.A. Frank, Leslie Schaffer, A.H. Kiracofe, Jr., T.M. Mackenzie, R.N. Butler, J.H. Menetrez, Christine Kehne, M.A. Woodbury, W.H. Young, Jr., Bertram Brown, J.H. Bouma, B.L. Burris, W.J. Stockton, Spencer Gordon, J.T. Quattlebaum, T.D. Reynolds (*Experimental*), W.L. Taylor (*Experimental Psychology*), D.L. Tippet, Archibald Ward, Jr. (*Sociology*), P.S. Weisberg, W.G. Tompkins, Frances Thomas (*Social Work*), Seymour Rabinowitz, D.S. Sprague, Roger Peele, S.L. Auster, Gertrude Cotts, Brian Crowley, Margaret Garrett, H.A. Greenberg, H.A. Hoffman, Julius Hoffman, R.A. McElroy, B.P. McKaig, J.M. Post, William Davidson, J.A. Schoettler, Stephen Weissman, Pearl Holly

Clinical Instructors W.H. Dobbs, W.A. Hamman, G.D. Legler, D.G. Lipman, S.A. Savitz, J.W. Voell

Special Lecturers W.E. Barton, Reza Arasteh

†301 **Psychiatry in the Practice of Medicine** (4) L. Yochelson and Staff

Normal personality development, psychopathology, psychosomatic disturbances, medical interviewing. Descriptions and clinical demonstration of psychoneuroses, character disorders with presentation of their causes, courses, and treatment. (Spring)

* Staff of Instruction for the academic year 1968-69.
† Required for medical students

*** 302 Clinical Clerkship (5)****Rankin and Staff**

Supervised examination, diagnosis, treatment of outpatients and inpatients at University and St. Elizabeths hospitals; case conferences, seminars on psychiatric referral, "psychiatric" drugs, community resources. Psychiatry in general practice stressed. (Fall and spring)

382 Clinical Psychiatry (5)**Waldrop**

Clinical care of patients hospitalized for emotional and mental disturbances. 2 juniors or seniors; 4-week elective periods. St. Elizabeths Hosp. (Spring)

383 Psychiatric Day-care (10)**Gans**

Participation in program of psychiatric rehabilitation directed toward return of patient to productivity in his community. 2 juniors or seniors; 8-week elective periods. V.A. Mental Hygiene Clinic (Spring)

384 Geriatric Psychiatry (5)**Waldrop**

Care and rehabilitative efforts with elderly inpatients with psychiatric and other incapacities. 1 junior or senior; 4-week elective periods. St. Elizabeths Hosp. (Spring)

385 Schizophrenic Reactions (5)**Bullard**

Psychotherapy and ward management of schizophrenic patients. 2 juniors or seniors; 4-week elective periods. Chestnut Lodge, Rockville, Md. (Spring)

386 Psychiatric Research (5)**Waldrop**

Research programs involving clinical and experimental investigations of human behavior. 2 juniors or seniors; 4-week elective periods. St. Elizabeths Hosp. (Spring)

387 Clinical Psychiatry (5)**Rankin**

Care of inpatients and outpatients; diagnostic evaluations; individual and group psychotherapies, somatic therapies. 1 junior or senior; 4-week elective periods. Univ. Hosp. (Spring)

388 Research: Chronic Patient (10)**Meyersburg**

Research into social, anthropological, psychological factors influencing long-term care of patients with chronic diseases. 2 juniors or seniors; 8-week elective periods. Univ. Hosp. (Spring)

390 Research: Psychiatric Aspects of Criminal Behavior (5)**S. Yochelson**

Social, anthropological, psychological factors producing criminal behavior. 2 seniors; 4-week elective periods. St. Elizabeths Hosp. (Spring)

391 Research: Constitutional Psychiatry (10)**S. Yochelson**

Comatotypy, genetics, encephalography, sensory deprivation; emphasis on the criminal. 2 seniors; 8-week elective periods. St. Elizabeths Hosp. (Spring)

392 Administrative Psychiatry (10)**Harris**

Apprenticeship to administrator of large public mental hospital. St. Elizabeths Hosp. (Spring)

- 394 **Marital-Premarital Counseling** (2) Abrahams
Counseling techniques for the physician. 16 juniors. (Fall)
- 395 **Psychotherapy** (2) Frank, Tompkins
Supervision of outpatient psychotherapy. 6 juniors. (Fall)
- 396 **Psychiatry in the Medical Specialties** (2) Drummond, Bever
Common psychiatric problems in general practice of medicine and in surgical specialties. 16 juniors. (Fall)
- 397 **Introduction to Psychoanalytic Thought** (1) Marill
Basic course in Freudian theory. 8 juniors. (Fall)

Radiology*

Professor W.W. Stanbro (Chairman)
 Professorial Lecturers J.M. LoPresti (*Pediatric Radiology*), Richard Moore
 Associate Professors C.F. Murphy, W.J. Nelson
 Associate Clinical Professors H.J. Kicherer, R.F. Dobbins, John Maier, R.M. Caulk, L.C. Hamilton, C.W. Boyer, Jr.
 Assistant Professors W.B. McAvoy, Richard Granke, L.W. Stanton, Whei-Rung Fu
 Assistant Clinical Professors Charlotte Donlan, S.R. Bersack, H.L. Berman, A.C. Wyman, D.B. Sodee (*Nuclear Medicine*), Bela Gondos, J.B. Johnston, Jr. (*Radiobiology*), Marion Faris, H.M. Hagen
 Clinical Instructors George Tievsky, U.V. Wilcox II, C.M. Weber, Zeki Erim, M.A. Thomas, Michael Vermess, G.A. Solack, James Burwell, R.D. Cornell, S.J. Kurzbard

- †301 **Radiology** (1) Staff
 X-ray production, methods of examination, normal and pathological X-ray findings of the various body systems, special studies, introduction to radiation therapy and radioisotopes. (Spring)

- 380 **Radiology** (5) Murphy
 Each student works with all department physicians sequentially. Daily film conferences. Each student discusses one diagnostic subject in depth, using films from the teaching file. All attend scheduled department conferences. 1 junior and 5 seniors; 4-week elective periods. Univ. Hosp. (Spring)

- 381 **Diagnostic and Therapeutic Radiology** (5) ‡Schumacher
 Observation in fluoroscopic procedures and participation in film reading sessions; observation of techniques and rationale of radiation therapy. 2 juniors or seniors; 4-week elective periods. Wash. Hosp. Center (Spring)

* Staff of Instruction for the academic year 1968-69.
 † Required for medical students.

‡ Dr. Schumacher is connected with the Washington Hospital Center.

382 General Radiology (5)

*Miller

Participation with the radiologist in diagnosis and therapy. Study in depth of approved subject. Room and board furnished. 1 junior or senior; 4-week elective periods. V.A. Center, Martinsburg, W. Va. (Spring)

Surgery†

Professors Brian Blades (*Chairman*), C.T. Klopp (*Cancer*), G.S. Letterman (*Plastic*), P.C. Adkins (*Associate Chairman*), J.G. Randolph (*Pediatrics*)
Clinical Professors W.S. McCune, V.M. Iovine, Alec Horwitz, G.A. Higgins, Jr.
Associate Professors H.C. Pierpont, T.C. Alford, N.P.D. Smyth, D.H. Glew, Jr., Don Wenger, J.E. McClenathan

Associate Clinical Professors J.R. Thistlethwaite, D.C. Wherry, E.A. Gould, Maxine Schurter, S.G. Mead (*Oral*), C.W. Hughes, J.H. Baugh

Assistant Professors P.E. Shorb, Jr., N.T. Tsangaris, Allan Hall, J.R. Lilly
Assistant Clinical Professors L.B. Burk, Jr., William Ferguson, J.M. Keshishian, J.J. Weinstein, Isabella Harrison, J.T. Estes, Ernst Bremer, F.B. Brandt, J.W. Canter, J.B. Harrell, N.H. Isaacson, L.R. Perna, S.M. Kirson, Fernando Sacasa (*Oral*), M.W. Wolcott, T.M. Wright, Yeong-Cheol Koh, R.D. Shapiro (*Oral*)

Instructors R.P. Altman, D.R. Norman

Clinical Instructors J.F. Conlon (*Oral*), Leon Gerber, B.G. Brown, J.H. Sager, Gerald Inguagiato, J.E. Peterson, Charles Rickerich, J.R. McClelland, G.E. White, Sheldon Holen (*Periodontics*), C.A. Silva, E.R. Lamm

Special Lecturer D.F. Lynch (*Oral*)

‡301 Lectures in Surgery (2)

Staff

‡302 Major Clinical Situations (Surgery) (3)

Staff

Lectures and demonstrations in surgical diagnosis and treatment.

‡303 Clinical Clerkship I (10)

Staff

Twelve weeks at University, V.A., D.C. General hospitals, and Washington Hospital Center.

‡304 Clinical Clerkship II (5)

Staff

Extension of Clinical Clerkship I.

‡305 Emergency Room and Warwick Clinic (5)

Staff

380 General Surgery I (5)

Iovine

Participation in general care of surgical patients; assigned reading. 1 senior; 4-week elective periods. Univ. Hosp. (Spring)

381 General Surgery II (5)

McCune

Participation in general care of surgical patients, assigned reading, experimental surgery for pancreatic disease. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)

* Dr. Miller is connected with the V.A. Center, Martinsburg, West Virginia.

† Staff of Instruction for the academic year 1968-69.

‡ Required for medical students.

- 382 Head and Neck Surgery (5)** Kloop
Study of new patients and follow-up of treated cases, minor surgical procedures, observation of operating room procedures; assigned reading. 1 senior; 4-week elective periods. Univ. Cancer Clinic (Spring)
- 383 Thoracic Surgery Research (5)** Blades, Adkins
Basic principles of research in thoracic surgery; assigned reading. 2 juniors or seniors; 4-week elective periods. Univ. Hosp. (Spring)
- 385 Experimental Surgery I (10)** Glew
Participating in existing surgical research projects, assigned reading, experimental operative procedures. 2 juniors; 8-week elective periods. Univ. Cancer Clinic (Spring)
- 386 Experimental Surgery II (5 or 10)** Pierpont
Participation in surgical research projects, assigned reading, experimental operative procedures. 3 juniors or seniors; 4- or 8-week elective periods. Univ. Cancer Clinic (Spring)
- 387 General Surgery III (5)** Thistlethwaite
Supplemental clerkship experience in surgery rounds, diagnostic studies, operational experience, preoperative and postoperative care; conferences and seminars. 2 juniors or seniors; 4-week elective periods. D.C. Gen. Hosp. (Spring)
- 389 Plastic Surgery (5)** Letterman
Basic aspects of plastic and reconstructive surgery; collateral reading. 1 junior or senior; 4-week elective periods. Univ. Hosp. (Spring)
- 390 General Surgery IV (5)** Hughes
Student participation in total patient care, including operative procedures on three separate surgical sections and a peripheral vascular section. Daily ward rounds, weekly grand rounds, conferences, and seminars. Both clinical and basic sciences are available. 3 juniors or seniors; 4-week elective periods. Walter Reed Gen. Hosp. (Spring)
- 391 General Surgery V (5)** Higgins
Participation in total care program of surgical patients; daily rounds, conferences, seminars. 4 seniors; 4-week elective periods. V.A. Hosp. (Spring)
- 393 General Surgery VI (10)** Hall
Surgical care program in a community hospital; emergency room service, including major trauma; pediatric surgery. 4 juniors or seniors; 8-week elective periods. Fairfax Hosp. (Spring)
- 394 Pediatric Surgery (5)** Randolph
Participation in an active, closely supervised surgical service for infants and children, including congenital defects, cardiac surgery, trauma, and neoplasms. Diagnostic studies, preoperative and postoperative care, operating room procedures. 3 juniors or seniors; 4-week elective periods. Children's Hosp. (Spring)
- 395 Experimental Surgery III (2)** Glew
Participation in existing surgical research projects, assigned reading, experimental operative procedures. 2 juniors. Univ. Cancer Clinic (Fall)

- 396 Experimental Surgery IV (2)** Pierpont
 Participation in surgical research projects, assigned reading, experimental operative procedures. 6 juniors. Univ. Cancer Clinic (Fall)
- 399 Disaster Medicine (1)** Pierpont
 Lectures and demonstrations showing management of mass casualties resulting from natural and unusual causes, including the effects of biologic warfare and nuclear explosions. (Fall)

Urology*

Professor L.R. Culbertson (Chairman)
Clinical Professor E.E. Ferguson
Associate Clinical Professors W.D. Jarman, F.T. Reuter
Assistant Clinical Professors Gilbert Ottenberg, G.R. MacDonald, H.A. Goldberg
Clinical Instructors H.D. Wolff, Jr., H.P. Dorman, W.D. Oldham, John Keanealy, F.P. Chiaramonte, George Dudas, H.J. Klapproth, R.C. Rhame, R.E. Ware, W.L. Banfield, I.S. Young, Chalon Rodriguez, E.H. Soifer

- †301 Urology (1)** Culbertson and Staff
 Covers entire field of urology including diagnosis, treatment, and morbid pathology.
- 380 Clinical Urology I (5)** Reuter
 Instruction in outpatient and diagnostic urology, including cystoscopy and radiographic procedures. 1 junior or senior; 4-week elective periods. Univ. Hosp. (Spring)
- 381 Clinical Urology II (5)** Culbertson
 Observation of urologic conditions and procedures for diagnosis and treatment, radiologic and pathologic studies, endoscopy and surgery, collateral reading, weekly staff conference. 2 seniors; 4-week elective periods. Univ. Hosp. (Spring)
- 382 Clinical Urology III (5)** Culbertson
 Observation of urologic conditions and procedures for diagnosis and treatment, radiologic and pathologic studies, endoscopy and surgery, collateral reading, weekly staff conference. 2 seniors; 4-week elective periods. V.A. Hosp. (Spring)

* Staff of Instruction for the academic year 1968-69.

† Required for medical students.

THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages thereof, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period,

the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences (undergraduate); the Graduate School of Arts and Sciences; the professional schools, which include the National Law Center and the schools of Medicine, Engineering and Applied Science, Education, Government and Business Administration, and Public and International Affairs; the College of General Studies; the Division of University Students; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board. The Department of Chemistry is on the approved list of the American Chemical Society.

The School of Medicine has had continuous approval by the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges. The degree of the School of Medicine is recognized by all State Examining Boards.

THE BOARD OF TRUSTEES 1968-69

Edward Karrick Morris, LL.D., *Chairman*
 Charles Emory Phillips, LL.B., LL.M., *Vice Chairman*
 James Matlack Mitchell, M.A., *Secretary*
 John W. Thompson, Jr., B.A., *Assistant Secretary*

- *Edgar Robey Baker, B.A.
- Robert Calhoun Baker, LL.D.
- *Harold Keith Bradford, B.A., LL.B.
- George A. Butler, LL.B.
- Mortimer Maxwell Caplin, B.S., LL.B., J.S.D., LL.D.
- Leonard Carmichael, Ph.D., Sc.D., LL.D., Litt.D., L.H.D., D.C.L.
- Eugene Cassin Carusi, M.A., J.D.

* Nominated by the Alumni.

- Miss Jacqueline Cochran, L.H.D., LL.D., Sc.D.
 *Donald C. Cook, B.A., M.B.A., J.D., LL.M., L.H.D., LL.D.
 *Harry Filmore Dowling, B.A., M.D., Sc.D.
 Harry F. Duncan
 Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President of the University, ex officio*
 Newell Windom Ellison, B.A., LL.B., LL.D.
 Mrs. Katharine Graham, B.A.
 Melville Bell Grosvenor, B.S., Sc.D., LL.D.
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 David Matthew Kennedy, LL.B., B.A., LL.D.
 Franklin Jerome Lunding, LL.B., LL.D.
 Jeremiah Milbank, Jr., B.A., M.B.A.
 Godfrey Leon Munter, B.A., LL.B., LL.D.
 Thornton W. Owen, B.S. in C.E., B.A.
 Sidney Dillon Ripley II, Ph.D., L.H.D., Sc.D.
 Carleton D. Smith
 Charles E. Smith
 Lewis L. Strauss, Sc.D., LL.D., L.H.D.
 Mark Sullivan, Jr., B.A.
 John W. Warner, B.S., LL.B.
 *William Gregg White, B.S. in C.E.
 John Johnston Wilson, LL.B.
 Watson W. Wise, Ph.B.
 Stephen Russell Woodzell, B.S. in E.E.
 *James Otis Wright, B.S., J.D.
 Eugene M. Zuckert, B.A., LL.B., LL.D., Sc.D.

HONORARY TRUSTEES

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 Charles Carroll Glover, Jr., M.A., LL.B., LL.D.
 Alfred Henry Lawson, LL.B., LL.D.
 John Keown McKee
 Benjamin Mosby McKelway, Litt.D.
 Walter George Ross, LL.D.
 Sidney William Souers, B.A., LL.D.
 Alexander Wetmore, Ph.D., Sc.D.
 Charles Stanley White, M.D., Sc.D.
 Lloyd Bennett Wilson

* Nominated by the Alumni.

OFFICERS OF ADMINISTRATION 1968-69

THE UNIVERSITY

Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President*
Harold Frederick Bright, Ph.D., *Vice President for Academic Affairs*
Henry William Herzog, B.S., *Vice President and Treasurer*
Warren Gould, M.A., *Vice President for Resources*
William David Johnson, B.S., *Director of the Budget*
Louis Harkey Mayo, B.S., J.S.D., *Vice President for Advanced Policy Studies*
William Parkhurst Smith, Jr., B.A., M.B.A., *Vice President for Student Affairs*
Frederick Russell Houser, M.A., *Registrar*
Joseph Young Ruth, B.A., *Director of Admissions*

THE SCHOOL OF MEDICINE AND THE UNIVERSITY HOSPITAL

John Parks, M.S., M.D., *Dean of the Medical Center*
James Joseph Feffer, B.A., M.D., *Associate Dean of the Medical Center, for Clinical Affairs; Chief of Staff, University Hospital and Clinics*
Angus MacIvor Griffin, Ph.D., *Associate Dean of the Medical Center, for Administration and Planning*
Frank Nelson Miller, Jr., B.S., M.D., *Associate Dean of the Medical Center, for Student and Curricular Affairs*
Victor Frederick Ludewig, B.S., *Administrator of the University Hospital and Clinics*



THE SCHOOL OF MEDICINE

Faculty and Staff of Instruction*

EMERITI

- Errett Cyril Albritton, *Professor Emeritus of Physiology*
B.A. 1916, University of Missouri; M.D. 1921, Johns Hopkins University
- Harry Ford Anderson, *Professor Emeritus of Dermatology and Syphilology*
M.D. 1924, University of Cincinnati
- Ralph Gregory Beachley, *Professor Emeritus of Clinical Public Health Practice*
M.D. 1920, George Washington University; Dr.P.H. 1926, University of Georgia
- Walter Andrew Bloedorn, *Professor Emeritus of Medicine*
M.D. 1909, Creighton University; B.A. 1915, M.A. 1916, Sc.D. 1948, George Washington University
- Daniel LeRay Borden, *Professor Emeritus of Clinical Surgery*
M.D. 1912, B.S. in Med. 1916, M.A. 1917, Sc.D. 1958, George Washington University
- Henry Lauran Darner, *Professor Emeritus of Clinical Obstetrics and Gynecology*
B.A. 1916, Western Maryland College; M.D. 1920, Johns Hopkins University
- Paul Frederick Dickens, *Professor Emeritus of Clinical Medicine*
M.D. 1908, University of Nashville
- Clayton Bernard Ethridge, *Professor Emeritus of Medicine*
M.D. 1933, University of Virginia
- Chester Elwood Leese, *Professor Emeritus of Physiology*
B.A. 1922, M.A. 1925, Ph.D. 1930, University of Iowa
- Edward Lewis, *Professor Emeritus of Clinical Pediatrics*
M.D. 1918, George Washington University
- Preston Alexander McLendon, *Professor Emeritus of Pediatrics*
B.S. 1913, Wake Forest University; M.D. 1915, Columbia University
- Daniel Bruce Moffett, *Professor Emeritus of Otolaryngology*
B.A. 1910, University of Richmond; M.D. 1915, University of Maryland
- Margaret Mary Nicholson, *Professor Emeritus of Clinical Pediatrics*
B.A. 1922, M.D. 1925, George Washington University
- George Nordlinger, *Professor Emeritus of Clinical Obstetrics and Gynecology*
B.A. 1918, M.D. 1922, George Washington University
- Leland Wilbur Parr, *Professor Emeritus of Bacteriology*
B.S. 1916, Ph.D. 1923, University of Chicago

* The Faculty and Staff of Instruction listed here and at the head of each department is for the academic year 1968-69.

Frederick A. Reuter, *Professor Emeritus of Urology*

M.D. 1916, George Washington University

Ernest Alfred Watson Sheppard, *Professor Emeritus of Clinical Ophthalmology*

M.D., C.M. 1926, Queens University, Canada

Thomas Carlton Thompson, *Professor Emeritus of Clinical Urology*

B.S. in Med., M.D. 1920, George Washington University

Charles Stanley White, *Professor Emeritus of Surgery*

M.D. 1898, Sc.D. 1946, George Washington University

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Theodore Judson Abernethy, *Associate Clinical Professor of Medicine*

B.S. 1925, Denison University; M.D. 1929, Johns Hopkins University

Kristof Abraham, *Clinical Instructor in Neurology*

M.D. 1952, Budapest University, Hungary

Joseph Abrahams, *Associate Clinical Professor of Psychiatry*

M.D. 1939, Emory University

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B.A. 1924, M.A. 1925, M.D. 1935, George Washington University

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B.S. 1943, University of Missouri; M.D. 1945, Washington University

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B.A. 1957, Drake University; M.S. 1959, Ph.D. 1961, University of Iowa

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B.S. 1943, M.D. 1947, Tufts University

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B.A. 1944, M.D. 1948, Johns Hopkins University

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B.S. 1941, M.D. 1943, University of Chicago

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B.A. 1950, M.A. 1951, State University of New York at Buffalo; Ph.D. 1958, Duke University

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M.D. 1942, University of Torino, Italy

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B.S. 1950, University of Nebraska; Ph.D. 1954, Washington University

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B.A. 1936, M.D. 1940, American University at Beirut, Lebanon

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M.D. 1949, Duke University

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B.A. 1944, Haverford College; M.D. 1947, Johns Hopkins University

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B.S. 1947, M.S. 1949, University of Utah; Ph.D. 1954, Louisiana State University

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B.A. 1943, M.D. 1945, University of Virginia

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B.S. 1928, M.D. 1932, Yale University

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B.A. 1939, Columbia University; M.D. 1943, State University of New York, Downstate Medical Center

- Roy Peter Altman, *Instructor in Surgery*
B.A. 1955, Colgate University; M.S. 1958, University of Rochester; M.D. 1961, New York Medical College
- Alice Altstatt, *Assistant Professor of Anesthesiology*
B.A. 1949, Bryn Mawr College; M.A. 1952, M.D. 1956, Vanderbilt University
- James Francis Ambury, *Assistant Clinical Professor of Medicine*
B.S. 1937, Fordham University; M.D. 1941, Georgetown University
- Harvey Hirsch Ammerman, *Clinical Professor of Neurological Surgery*
B.S. 1939, M.D. 1943, George Washington University
- Arthur James Anderson, *Clinical Instructor in Medicine*
M.D. 1961, George Washington University
- John Albert Anderson, *Clinical Instructor in Pediatrics*
B.S. 1958, M.D. 1960, University of Illinois
- Robert Harper Anderson, *Clinical Instructor in Pediatrics*
M.D. 1946, Duke University
- W. French Anderson, *Professorial Lecturer in Biochemistry*
B.A. 1958, M.D. 1963, Harvard University; M.A. 1960, Cambridge University, England
- William Staton Anderson, *Clinical Professor of Pediatrics*
B.A. 1927, Duke University; M.D. 1931, Johns Hopkins University
- John Lawrence Angel, *Professorial Lecturer in Anatomy and Anthropology*
B.A. 1936, Ph.D. 1942, Harvard University
- Leonard Philip Appel, *Clinical Instructor in Medicine*
B.A. 1953, M.D. 1957, New York University
- Ronald Alan Apter, *Assistant Clinical Professor of Medicine*
M.D. 1958, George Washington University
- Reza Arasteh, *Special Lecturer in Psychiatry*
B.A. 1948, M.A. 1950, University of Tehran, Iran; Ph.D. 1953, Louisiana State University
- Irwin Ardam, *Assistant Clinical Professor of Medicine*
B.A. 1948, New York University; M.D. 1954, New York Medical College
- Louis Felipe Arias-Bernal, *Instructor in Obstetrics and Gynecology*
B.A. 1950, National College of Saint Bartholomew, Colombia; M.D. 1957, National University, Colombia
- Malcolm Stewart Artenstein, *Assistant Clinical Professor of Medicine*
B.A. 1951, Brown University; M.D. 1955, Tufts University
- Edwin Fjelde Aune, *Clinical Instructor in Medicine*
M.D. 1944, State University of New York, Downstate Medical Center
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B.A. 1952, Yeshiva University; M.D. 1956, New York University
- James Albert Austin, *Clinical Instructor in Obstetrics and Gynecology*
B.S. 1952, University of Southern California; M.D. 1956, George Washington University
- Gordon Avery, *Associate Professor of Pediatrics*
B.A. 1953, Harvard University; M.D. 1958, Ph.D. 1959, University of Pennsylvania
- William Ross Ayers, *Research Instructor in Medicine*
B.S. 1957, M.D. 1961, Georgetown University
- Silas Babin, Jr., *Assistant Clinical Professor of Medicine*
M.D. 1951, Louisiana State University
- Frank Solomon Bacon, *Associate Clinical Professor of Medicine*
B.S. 1928, M.B. 1930, M.D. 1931, University of Minnesota
- James Michael Bacos, *Assistant Professor of Medicine*
B.S. 1948, Virginia Polytechnic Institute; M.D. 1953, Duke University
- Robert Emil Badwey, *Clinical Instructor in Obstetrics and Gynecology*
B.S. 1955, Franklin and Marshall College; M.D. 1959, University of Pittsburgh
- Alfred Baer, *Associate Clinical Professor of Medicine*
B.A. 1942, Ohio State University; M.D. 1945, Johns Hopkins University

- William Eldridge Bageant, *Assistant Clinical Professor of Anesthesiology*
M.D. 1939, George Washington University
- Jack Sidney Bailey, *Assistant Research Professor of Medicine (Microbiology)*
B.S. 1952, Hampton Institute; M.S. 1960, Howard University
- John Martyn Bailey, *Associate Professor of Biochemistry*
B.S. 1949, Ph.D. 1952, University of Wales
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M.D. 1940, George Washington University
- Guillermo Alfredo Balfour, *Special Lecturer in Pediatrics*
M.D. 1959, University of Buenos Aires, Argentina
- William George Ballinger, *Assistant Clinical Professor of Dermatology*
B.A. 1948, Ohio State University; M.D. 1952, Case Western Reserve University
- Giuseppe Balsamo, *Assistant Clinical Professor of Physical Medicine and Rehabilitation*
Laurea in Medicinae Chirurgia 1952, University of Rome, Italy
- William Landon Banfield, *Clinical Instructor in Urology*
B.A. 1954, Princeton University; M.D. 1958, George Washington University
- Samuel Harvard Barboo, Jr., *Assistant Professorial Lecturer in Epidemiology and Environmental Health*
B.S. 1955, M.P.H. 1957, University of California, Berkeley; Dr.P.H. 1966, University of California, Los Angeles
- Lewellys Franklin Barker, *Clinical Instructor in Medicine*
B.A. 1955, Princeton University; M.D. 1959, Johns Hopkins University
- Ann Birnbaum Barnet, *Instructor in Neurology*
B.A. 1951, Sarah Lawrence College; M.D. 1956, Harvard University
- Solomon Efrem Barr, *Assistant Clinical Professor of Medicine*
B.A. 1951, M.D. 1954, George Washington University
- Andre Barrabini, *Clinical Instructor in Medicine*
M.D. 1953, University of Paris, France
- John William Barrett, *Clinical Instructor in Neurological Surgery*
M.D. 1958, George Washington University
- Robert Henry Barter, *Professor of Obstetrics and Gynecology*
B.S. 1937, M.D. 1940, University of Wisconsin
- Walter Earl Barton, *Special Lecturer in Psychiatry*
B.S. 1928, M.D. 1931, University of Illinois
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B.A. 1955, Yale University; M.D. 1960, University of Tennessee
- Emil Herbert Bauersfeld, *Assistant Clinical Professor of Medicine*
B.A. 1932, M.D. 1935, George Washington University
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B.S. 1949, Wilmington College, Ohio; M.D. 1953, St. Louis University
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B.S. in Law 1931, Northwestern University; LL.D. 1966, Colby College
- Mary Loretto Coleman Bazelon, *Instructor in Neurology*
B.A. 1949, University of Chicago; M.A. 1957, Johns Hopkins University; M.D. 1960, George Washington University
- Kenneth Louis Becker, *Assistant Professor of Medicine*
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B.A. 1933, M.D. 1936, University of Oregon
- Samuel Michael Belinsky, *Clinical Instructor in Obstetrics and Gynecology*
B.A. 1955, University of Bridgeport; M.D. 1959, George Washington University

- Robert Reid Belton, *Associate Clinical Professor of Medicine*
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B.A. 1955, M.D. 1958, Cornell University
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B.A. 1958, Haverford College; M.D. 1962, Harvard University
- Robert William Berliner, *Special Lecturer in Medicine (Renal Disease)*
B.S. 1936, Yale University; M.D. 1939, Columbia University
- Harry Louis Berman, *Assistant Clinical Professor of Radiology*
B.S. 1937, Bradley University; M.B. 1932, M.D. 1933, Northwestern University
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B.S. 1928, M.D. 1932, Georgetown University
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B.S. 1931, City College, New York; M.D. 1935, New York University
- Christopher Theodore Bever, *Associate Clinical Professor of Psychiatry*
B.A. 1940, M.D. 1943, Harvard University
- Lewis Henry Biben, *Assistant Clinical Professor of Medicine*
M.D. 1949, Hahnemann Medical College
- Emilie Annabelle Black, *Clinical Instructor in Pediatrics*
B.S. 1942, M.D. 1945, George Washington University
- Theodore Fisher Blackwelder, *Clinical Instructor in Obstetrics and Gynecology*
B.S. 1952, Roanoke College; M.D. 1956, George Washington University
- Brian Blades, *Lewis Saltz Professor of Surgery*
B.A. 1928, University of Kansas; M.D. 1932, Washington University
- Ethel Joan Blanchette, *Assistant Professor of Anatomy*
B.S. 1956, Queens College, New York; M.S. 1959, New York University; Ph.D. 1965, Columbia University
- Willard Blankenship, *Assistant Professor of Pediatrics*
B.S. 1955, Western Kentucky University; M.D. 1959, Vanderbilt University
- Joe Morris Blumberg, *Clinical Professor of Pathology*
B.S. 1930, M.D. 1933, Emory University
- Lester Sylvan Blumenthal, *Associate Clinical Professor of Medicine*
B.A. 1938, M.D. 1941, George Washington University; M.S. in Med. 1945, University of Minnesota
- Norman Kay Bohrer, *Clinical Instructor in Medicine*
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- Frank Joseph Borsody, *Clinical Instructor in Medicine*
B.A. 1955, George Washington University; M.D. 1960, University of Virginia
- John Henry Bouma, *Assistant Clinical Professor of Psychiatry*
B.A. 1948, B.S. 1949, M.B. 1952, M.D. 1953, University of Minnesota
- Carl Wright Boyer, Jr., *Associate Clinical Professor of Radiology*
B.S. 1951, Muhlenberg College; M.D. 1955, Jefferson Medical College of Philadelphia
- Roscoe Brady, Jr., *Professorial Lecturer on Biochemistry of the Brain*
M.D. 1947, Harvard University

- Frederick Bertram Brandt, *Assistant Clinical Professor of Surgery*
B.S. 1942, M.D. 1943, University of Maryland
- Arthur Seymour Brecher, *Assistant Professor of Biochemistry*
B.S. 1948, City College, New York; Ph.D. 1956, University of California, Los Angeles
- Ernst Bremer, *Assistant Clinical Professor of Surgery*
M.D. 1949, University of Marburg, Germany
- Gloria Godbey Brennan, *Assistant Clinical Professor of Pathology*
B.A. 1949, M.D. 1952, George Washington University
- Frances Elizabeth Brennecke, *Clinical Instructor in Orthopaedic Surgery*
B.A. 1927, University of Pennsylvania; M.D. 1936, University of Chicago
- Alexander Breslow, *Associate Professor of Pathology*
B.S. 1948, M.S., M.D. 1953, University of Chicago
- Alice Brigham, *Assistant Clinical Professor of Medicine*
B.A. 1936, M.D. 1941, University of Michigan
- Albert Seymour Bright, *Clinical Instructor in Obstetrics and Gynecology*
B.A. 1935, M.D. 1938, George Washington University
- Alfred Brigulio, *Associate Clinical Professor of Medicine*
M.D. 1936, George Washington University
- Warren Daniel Brill, *Associate Clinical Professor of Medicine*
B.S., M.D., 1944, University of Maryland
- Bernard Beryl Brodie, *Professorial Lecturer in Pharmacology*
B.S. 1931, McGill University, Canada; Ph.D. 1935, New York University
- Arnold Gene Brody, *Clinical Instructor in Medicine*
M.D. 1960, University of Illinois
- Bertram Brown, *Assistant Clinical Professor of Psychiatry*
B.A. 1952, Brooklyn College; M.D. 1956, Cornell University; M.P.H. 1960, Harvard University
- Brooks Gideon Brown, *Clinical Instructor in Surgery*
M.D. 1939, George Washington University
- Crawford Southwell Brown, *Assistant Clinical Professor of Dermatology*
B.A. 1946, Kenyon College; M.D. 1948, University of Michigan
- Halla Brown, *Professor of Medicine*
M.D. 1939, Johns Hopkins University
- Raymond Nathan Brown, *Assistant Clinical Professor of Anatomy*
M.D. 1943, George Washington University
- Robert Horatio Brown, *Assistant Clinical Professor of Orthopaedic Surgery*
B.A. 1940, Tufts University; M.D. 1943, Harvard University
- Thomas McPherson Brown, *Eugene Meyer Professor of Medicine*
B.A. 1929, Swarthmore College; M.D. 1933, Johns Hopkins University
- George Cumming Buchanan, *Assistant Clinical Professor of Medicine*
B.A. 1943, Duke University; M.D. 1948, Johns Hopkins University
- Dexter Means Bullard, *Clinical Professor of Psychiatry*
Ph.B. 1920, Yale University; M.D. 1923, University of Pennsylvania
- Lloyd Byron Burk, Jr., *Assistant Clinical Professor of Surgery*
B.A. 1938, M.D. 1942, University of Virginia
- William Wesley Burr, Jr., *Professorial Lecturer in Biochemistry (Isotopes)*
B.A. 1947, University of Nebraska; M.S. 1948, Ph.D. 1951, University of Illinois; M.D. 1960, University of Texas
- Boyd Lee Burris, *Assistant Clinical Professor of Psychiatry*
B.S. 1951, M.D. 1952, University of Tennessee
- James Burwell, *Clinical Instructor in Radiology*
B.A. 1952, University of Pittsburgh; M.D. 1956, University of Maryland
- Stewart William Bush, *Associate Professor of Medicine*
B.S. 1943, Massachusetts State College; M.D. 1946, Johns Hopkins University

- Robert Neil Butler, *Assistant Clinical Professor of Psychiatry*
B.A. 1949, M.D. 1953, Columbia University
- William Seal Byers, *Instructor in Medicine*
B.S. 1960, Franklin and Marshall College; M.D. 1964, University of Maryland
- Cesar Augusto Caceres, *Associate Professor of Medicine*
B.S. 1949, M.D. 1953, Georgetown University
- *Paul Calabrisi, *Alumni Professor of Anatomy*
B.A. 1931, (Catholic) University of America; M.A. 1940, George Washington University;
Ph.D. (Cantab.) 1955, Cambridge University, England
- Juan Calatayud, *Assistant Professor of Medicine*
M.D. 1952, University of Valencia, Spain
- Dale Corbin Cameron, *Clinical Professor of Psychiatry*
B.A. 1933, M.D. 1936, University of Nebraska; M.P.H. 1951, Johns Hopkins University
- Jerome Wolf Canter, *Assistant Clinical Professor of Surgery*
M.D. 1955, George Washington University
- David Roland Carlson, *Clinical Instructor in Obstetrics and Gynecology*
B.S. 1953, Drake University; M.D. 1960, George Washington University
- Charles Patrick Henry Carroll, *Clinical Instructor in Neurological Surgery*
B.A. 1952, Boston College; M.D. 1961, Georgetown University
- Marie Mullaney Cassidy, *Associate Professor of Physiology*
B.S. (General) 1957, B.S. (Special) 1958, M.S. 1959, Ph.D. 1962, National University of Ireland
- Richard Bernard Castell, *Assistant Clinical Professor of Medicine; University Physician; Director, Health Services*
B.A. 1932, M.D. 1935, George Washington University
- Hereward Seagrieve Cattell, *Clinical Instructor in Orthopaedic Surgery*
B.A. 1954, Amherst College; M.D. 1958, University of Rochester
- Ralph Mearle Caulk, *Associate Clinical Professor of Radiology*
M.D. 1934, University of Kansas
- William Paxson Chalfant, Jr., *Assistant Clinical Professor of Ophthalmology*
M.D. 1934, Hahnemann Medical College
- John Loomis Chamberlain III, *Clinical Instructor in Pediatrics*
B.S. 1953, Amherst College; M.D. 1957, University of Virginia
- Chao Hung Chan, *Instructor in Medicine (Metabolic Research)*
B.B.A. 1955, M.D. 1962, University of the East, Philippines
- PooLiang Chang, *Clinical Instructor in Medicine*
M.D. 1959, National Taiwan University
- Eugene Joseph Chap, *Clinical Instructor in Medicine*
B.S. 1957, St. Bonaventure University; M.D. 1961, Marquette University
- Dorothea Beckh Chapman, *Assistant Clinical Professor of Medicine*
M.D. 1945, Leopold-Franzens University, Austria
- Frederic Dunbar Chapman, *Assistant Clinical Professor of Medicine*
B.A. 1933, Syracuse University; M.D., C.M. 1938, McGill University, Canada
- George Allyn Chapman, *Assistant Clinical Professor of Medicine*
B.S. 1942, College of William and Mary; M.D. 1945, Medical College of Virginia
- Jacob Bernard Chassan, *Assistant Clinical Professor of Psychiatry (Biostatistics)*
B.S. 1939, City College, New York; M.A. 1949, Ph.D. 1958, George Washington University
- Francis Paul Chiaramonte, *Clinical Instructor in Urology*
B.A. 1950, Colgate University; M.P.H. 1954, Columbia University; M.D. 1958, Georgetown University
- Paul Chodoff, *Clinical Professor of Psychiatry*
B.A. 1934, University of Pennsylvania; M.D. 1938, Jefferson Medical College of Philadelphia

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- Tushar Kumar Chowdhury, *Assistant Professor of Physiology*
B.S. 1936, University of Calcutta, India; M.S. 1961, University of Montana; Ph.D. 1965, State University of New York at Buffalo
- John Bert Christensen, *Associate Professor of Anatomy*
B.A. 1954, Brigham Young University; M.S. 1955, Ph.D. 1958, University of Oklahoma
- Yang-Ming Chu, *Assistant Research Professor of Microbiology*
B.S. 1959, University of Washington; M.S. 1964, Ph.D. 1967, George Washington University
- Francis Chucker, *Assistant Clinical Professor of Medicine*
M.D. 1957, Marquette University
- Anthony Chi-wu Chung, *Assistant Professor of Pediatrics (Biochemistry)*
B.S. 1949, M.S. 1950, Ph.D. 1958, University of Maryland
- Lloyd Eugene Church, *Associate Professorial Lecturer in Anatomy*
B.A. 1942, West Virginia University; D.D.S. 1944, University of Maryland; M.S. 1951, Ph.D. 1959, George Washington University
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B.A. 1947, College of Wooster; Ph.D. 1952, University of Rochester
- Hugh Gambel Clark, *Assistant Clinical Professor of Pediatrics*
B.A. 1930, Howard Payne College; M.D. 1934, University of Texas
- Ronald Grey Clark, *Assistant Professorial Lecturer in Anatomy*
B.A. 1960, Johns Hopkins University; M.S. 1963, Ph.D. 1966, George Washington University
- John Wilson Clarke, *Visiting Associate Professor of Anatomy*
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B.A. 1951, Virginia Military Institute; M.D. 1955, University of Maryland
- Charles Seymour Coakley, *Professor of Anesthesiology*
M.D. 1937, George Washington University
- George Joel Cohen, *Assistant Clinical Professor of Pediatrics*
M.D. 1950, George Washington University
- Victor Hugo Cohn, Jr., *Associate Professor of Pharmacology*
B.S. 1952, Lehigh University; M.A. 1954, Harvard University; Ph.D. 1961, George Washington University
- Allan Bertram Coleman, *Associate Clinical Professor of Pediatrics*
M.D. 1943, George Washington University
- Roy Melvin Coleman, *Assistant Professor of Psychiatry*
B.A. 1952, Harvard University; M.D. 1959, University of Rochester
- Joseph Francis Conlon, *Clinical Instructor in Oral Surgery*
D.D.S. 1934, Georgetown University
- Nathaniel Thomas Connally, *Clinical Instructor in Medicine*
B.A. 1958, M.D. 1962, University of Virginia
- Steven Joseph Conway, *Clinical Instructor in Medicine*
B.S. 1955, University of Notre Dame; M.D. 1959, Georgetown University
- Charles Barrie Cook, *Assistant Clinical Professor of Pathology*
B.S. 1945, Hampden-Sydney College; M.D. 1948, George Washington University
- Stewart Dallas Cooley, *Clinical Instructor in Obstetrics and Gynecology*
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- Charles David Cooper, *Assistant Clinical Professor of Medicine*
B.A. 1948, M.D. 1951, George Washington University
- William Hurlbert Cooper, *Assistant Clinical Professor of Obstetrics and Gynecology*
B.A. 1946, Case Western Reserve University; M.D. 1949, George Washington University
- Bernard Robert Cooperman, *Assistant Clinical Professor of Medicine*
B.A. 1946, M.D. 1949, George Washington University

- Philip Corfman, Clinical Instructor in Obstetrics and Gynecology**
B.A. 1950, Oberlin College; M.D. 1954, Harvard University
- Milton Corn, Associate Professor of Medicine**
B.S. 1952, M.D. 1955, Yale University
- Roger Detlef Cornell, Clinical Instructor in Radiology**
B.S. 1951, Davidson College; M.D. 1955, University of Maryland
- Frank Duncan Costenbader, Clinical Professor of Ophthalmology**
B.S. 1925, Hampden-Sydney College; M.D. 1929, University of Virginia
- Gertrude Cotts, Assistant Clinical Professor of Psychiatry**
M.D. 1935, Friedrich Wilhelm University, Germany
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B.A. 1939, Georgetown University; M.D. 1943, Johns Hopkins University
- Marjorie Broer Creelman, Assistant Clinical Professor of Psychiatry (Psychophysiology)**
B.A. 1931, Vassar College; M.A. 1932, Columbia University; Ph.D. 1954, Case Western Reserve University
- Elizabeth Amanda Crisp, Clinical Instructor in Obstetrics and Gynecology**
B.S. 1943, Texas Woman's University; M.D. 1950, Louisiana State University
- Jeremiah Keith Cromer, Associate Clinical Professor of Obstetrics and Gynecology**
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- Harold Eugene Cross, Assistant Clinical Professor of Obstetrics and Gynecology**
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- Jack Crowell, Assistant Clinical Professor of Medicine**
B.S. 1947, M.D. 1951, George Washington University
- Brian Crowley, Assistant Clinical Professor of Psychiatry**
M.D. 1957, Yale University
- Pedro Cuatrecasas, Professorial Lecturer in Biochemistry (Enzymology)**
B.A. 1958, M.D. 1962, Washington University
- Leon Richard Culbertson, Professor of Urology**
B.S., M.D. 1936, University of Virginia
- Cecil Carleton Helmer Cullander, Assistant Clinical Professor of Psychiatry**
B.S. 1944, M.D. 1946, University of Wisconsin
- Edward Earl Cunningham, Clinical Instructor in Obstetrics and Gynecology**
B.A. 1952, Washington and Jefferson College; M.S. 1954, Duquesne University; M.D. 1960, George Washington University
- James Allen Curtin, Associate Professor of Medicine**
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- Gilbert Bernard Cushner, Clinical Instructor in Medicine**
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- Leon Cytryn, Associate Professor of Pediatrics (Psychiatry)**
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B.A. 1938, M.D. 1941, George Washington University
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B.S. 1952, M.S. 1954, George Washington University; M.D. 1960, University of Maryland
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- Ronald Stuart Deitch, Clinical Instructor in Ophthalmology**
B.A. 1954, Washington and Lee University; M.D. 1958, George Washington University
- Anatole Stephen Dekaban, Assistant Clinical Professor of Neurology**
M.D. 1939, Warsaw University, Poland; M.S. 1951, Ph.D. 1954, McGill University, Canada
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B.A. 1947, University of Wisconsin; M.S.W. 1952, University of Pennsylvania
- Herbert Harold Diamond, Clinical Instructor in Pediatrics**
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B.A. 1944, M.D. 1948, Cornell University
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B.S. 1934, University of Wisconsin; M.D. 1937, Northwestern University
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M.D. 1952, University of Budapest, Hungary
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B.A. 1942, Sweetbriar College; M.A. 1951, M.D. 1955, George Washington University
- Robert Edward duPrey, Assistant Clinical Professor of Ophthalmology**
B.S. 1942, Trinity College, Connecticut; M.D. 1945, Jefferson Medical College of Philadelphia
- Jack Durell, Associate Clinical Professor of Psychiatry**
B.A. 1949, Harvard University; M.D. 1953, Yale University
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B.A. 1927, Ph.D. 1933, Yale University
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M.D. 1934, George Washington University

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B.A. 1931, University of Michigan; M.D. 1933, George Washington University
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B.A. 1952, Harvard University; M.D. 1956, George Washington University
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B.A. 1942, Rice University; M.D. 1945, University of Texas; M.S. 1951, McGill University, Canada
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B.S. 1936, M.D. 1940, University of Virginia
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B.S. 1954, George Washington University; M.D. 1958, University of Maryland
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M.D. 1949, University of Athens, Greece; M.D. 1954, University of Vermont
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B.A. 1938, Cornell University; M.D. 1943, New York University
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- Burton Seymour Epstein, *Associate Professor of Anesthesiology*
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- Stephen Ireland Granger, *Instructor in Pediatrics*
B.A. 1952, Amherst College; M.D. 1958, George Washington University
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B.S. 1950, Massachusetts Institute of Technology
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- Paul Holley Gray, *Clinical Professor of Psychiatry*
B.S. 1939, M.D. 1942, University of Chicago
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B.A. 1939, Ph.D. 1965, University of Minnesota
- Harold Abraham Greenberg, *Assistant Clinical Professor of Psychiatry*
B.A. 1942, M.D. 1945, Temple University
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B.A. 1956, B.S. 1957, M.D. 1959, University of Minnesota
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B.A. 1937, M.D. 1941, George Washington University
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B.A. 1934, M.D. 1937, New York University
- Thomas Hamlin Gresinger, *Clinical Instructor in Obstetrics and Gynecology*
B.A. 1957, Williams College; M.D. 1961, George Washington University
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Ph.B. 1931, M.A. 1933, Ph.D. 1938, Brown University
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B.S. 1948, M.S. 1950, Ph.D. 1953, Ohio State University
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B.A. 1952, Boston University; M.S. in P.H. 1953, Columbia University; M.S. 1958, M.D. 1959, George Washington University
- Robert Henry Groh, *Clinical Professor of Neurology*
B.S. 1935, M.D. 1937, University of Pittsburgh
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M.D. 1949, University of Louisville
- Mabel Harlakenden Grosvenor, *Assistant Clinical Professor of Pediatrics*
B.A., M.D. 1931, Johns Hopkins University
- Vincent Livingston Guandolo, *Clinical Instructor in Pediatrics*
B.A. 1953, Kenyon College; M.D. 1962, George Washington University
- Grace Hughes Guin, *Assistant Clinical Professor of Pathology*
B.S. 1938, Birmingham-Southern College; M.D. 1943, Vanderbilt University
- Milton Gusack, *Associate Clinical Professor of Medicine*
B.A. 1937, M.D. 1941, Johns Hopkins University
- Margaret Frances Gutelius, *Associate Professor of Pediatrics*
B.A. 1929, College of Wooster; M.D. 1938, Columbia University
- Paul Adrian Haber, *Assistant Clinical Professor of Medicine*
B.A. 1941, M.D. 1949, University of Texas; M.A. 1942, Columbia University; M.S. in P.A. 1968, George Washington University

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B.A. 1956, St. Olaf College; M.D. 1960, George Washington University
- John Thomas Hagenbucher, Assistant Clinical Professor of Medicine; Associate University Physician**
B.S. 1950, Philadelphia College of Pharmacy and Science; M.D. 1957, George Washington University
- William Archer Hagins, Associate Professorial Lecturer in Physiology**
B.A. 1946, M.A. 1948, M.D. 1952, Stanford University; Ph.D. (Cantab.) 1958, Cambridge University, England
- Fred Ernst Hahn, Professorial Lecturer in Pharmacology**
Ph.D. 1948, University of Kiel, Germany
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B.A. 1961, Bellarmine College; Ph.D. 1966, University of Louisville
- Michael Joseph Halberstam, Clinical Instructor in Medicine**
B.A. 1953, Harvard University; M.D. 1957, Boston University
- Allan Hall, Assistant Professor of Surgery**
B.A. 1949, M.D. 1952, George Washington University
- Wilson Luther Hall, Assistant Clinical Professor of Medicine**
B.A. 1943, College of Wooster; M.D. 1947, George Washington University
- James Addison Halsted, Professor of International Health**
B.A. 1926, M.D. 1930, Harvard University
- Longstreet Cavett Hamilton, Associate Clinical Professor of Radiology**
B.S. 1940, Millsaps College; M.D. 1944, Tulane University of Louisiana
- Wilbur Albert Hamman, Clinical Instructor in Psychiatry**
B.A. 1950, Occidental College; M.D. 1955, University of Chicago
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M.D. 1960, University of Edinburgh, Scotland
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B.A. 1954, M.D. 1958, Johns Hopkins University
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M.D. 1949, Duke University
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M.D. 1955, M.P.H. 1959, Harvard University
- Jerome Blaine Harrell, Assistant Clinical Professor of Surgery; University Surgeon**
M.D. 1936, George Washington University
- David Warner Harris, Associate Clinical Professor of Psychiatry**
B.A. 1943, Williams College; M.D. 1946, University of Pennsylvania
- Forest Klaire Harris II, Assistant Clinical Professor of Medicine**
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B.S. 1930, M.D. 1932, Indiana University
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- George Tievsky, *Clinical Instructor in Radiology*
B.S. in Phar. 1939, M.D. 1943, George Washington University
- Donn Lloyd Tippet, *Assistant Clinical Professor of Psychiatry*
M.D. 1947, Ohio State University
- Elijah White Titus, Jr., *Clinical Instructor in Obstetrics and Gynecology*
M.D. 1952, George Washington University
- Anna Coyne Todd, *Associate Clinical Professor of Psychiatry*
B.A. 1928, M.D. 1932, University of Wisconsin
- William Garland Tompkins, *Assistant Clinical Professor of Psychiatry*
B.S. 1949, M.D. 1955, Howard University
- David Michael Tormey, *Assistant Clinical Professor of Medicine*
B.S. 1944, College of the Holy Cross; M.D. 1948, New York Medical College
- George Anthony Tralka, *Clinical Instructor in Medicine*
B.S. 1949, M.D. 1956, Georgetown University
- Janet Travell, *Associate Clinical Professor of Medicine*
B.A. 1922, Wellesley College; M.D. 1926, Cornell University
- Carleton Raymond Treadwell, *Professor of Biochemistry*
B.A. 1934, Battle Creek College; M.S. 1935, Ph.D. 1939, University of Michigan
- Howard Pettit Treichler, *Assistant Clinical Professor of Obstetrics and Gynecology*
M.D. 1946, George Washington University
- William MacLohon Tribble, *Assistant Clinical Professor of Otolaryngology*
B.A. 1943, Princeton University; M.D. 1950, George Washington University; M.S. in Med. 1956, University of Pennsylvania
- Nelson Perez Trujillo, *Clinical Instructor in Medicine*
B.S. 1955, Baldor Academy, Cuba; M.D. 1962, Tulane University of Louisiana
- Neofytos Theodore Tsangaris, *Assistant Professor of Surgery*
B.S. 1952, Duke University; M.D. 1956, George Washington University
- Pierre Tulou, *Special Lecturer in Medicine*
M.D. 1943, University of Paris, France
- Maria Lourdes Turner, *Clinical Instructor in Dermatology*
B.S. 1958, M.D. 1961, University of the Philippines
- Raymond William Turner, *Clinical Instructor in Medicine*
B.A. 1954, Amherst College; M.D. 1958, Yale University
- Sidney Udenfriend, *Professorial Lecturer in Biochemistry (Intermediary Metabolism)*
B.S. 1939, City College, New York; M.S. 1942, Ph.D. 1948, New York University
- Herbert Andrew Urweider, *Assistant Professor of Ophthalmology*
B.A. 1954, Bowdoin College; M.D., C.M. 1958, McGill University, Canada
- George Vartkes Vahouny, *Associate Professor of Biochemistry*
B.S. 1953, M.S. 1955, Ph.D. 1958, George Washington University
- David Leo VerLee, *Clinical Instructor in Ophthalmology*
M.D. 1962, M.S. 1966, University of Michigan
- Michael Vermess, *Clinical Instructor in Radiology*
M.D. 1958, University of Vienna, Austria
- Josef Karel Viktora, *Associate Research Professor of Medicine (Biochemistry)*
B.S. 1950, Ph.D. 1953, Charles University, Czechoslovakia

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B.S. 1949, M.S. 1950, University of Missouri; M.P.H. 1953, University of California, Berkeley
- Brantley Paul Vitek, *Clinical Instructor in Orthopaedic Surgery*
B.A. 1957, Western Maryland College; M.D. 1961, University of Maryland
- Boris Vlalukin, *Instructor in Medicine*
M.D. 1961, University of Belgrade, Yugoslavia
- James Wells Voell, *Clinical Instructor in Psychiatry*
M.D. 1959, Marquette University
- Robert Stephen Waldman, *Clinical Instructor in Medicine*
B.A. 1957, University of Pennsylvania; M.D. 1961, Georgetown University
- Francis Neil Waldrop, *Clinical Professor of Psychiatry*
B.A. 1946, University of Minnesota; M.D. 1950, George Washington University
- William Davies Wallace, Jr., *Clinical Instructor in Obstetrics and Gynecology*
B.S. 1949, Westminster College, Pennsylvania; M.D. 1953, Jefferson Medical College of Philadelphia
- James Christopher Walsh, *Assistant Clinical Professor of Obstetrics and Gynecology*
B.A. 1941, M.D. 1945, Georgetown University
- John Walter Walsh, *Assistant Clinical Professor of Medicine*
B.S. 1938, St. Francis College, New York; M.D. 1942, State University of New York, Downstate Medical Center
- Donald Walters, *Associate Clinical Professor of Obstetrics and Gynecology*
B.S. 1939, M.D. 1943, University of Virginia
- Archibald Ward, Jr., *Assistant Clinical Professor of Psychiatry (Sociology)*
B.S. 1933, North Carolina State University at Raleigh; B.D. 1937, Crozer Theological Seminary; Ph.D. 1947, University of Maryland
- Robert Edward Ware, *Clinical Instructor in Urology*
M.D. 1953, Medical College of Virginia
- Robert Orr Warthen, *Clinical Instructor in Pediatrics*
M.D. 1944, George Washington University
- John Augustine Washington, *Clinical Professor of Pediatrics*
B.A. 1924, Virginia Military Institute; B.S. 1926, University of Virginia; M.D. 1930, Johns Hopkins University
- Joseph Hicks Watson, *Assistant Clinical Professor of Medicine*
B.S. 1940, University of Florida; M.D. 1943, Hahnemann Medical College
- John Watt, Jr., *Associate Professor of Physical Medicine and Rehabilitation*
B.S. 1947, Presbyterian College; M.D. 1947, Johns Hopkins University
- Mary Falorsi Watt, *Associate Professor of Medicine*
M.D. 1950, Johns Hopkins University
- James Winston Watts, *Professor of Neurological Surgery*
B.S. 1924, Virginia Military Institute; M.D. 1928, University of Virginia
- Benny Waxman, *Assistant Professor of Obstetrics and Gynecology*
M.D. 1957, University of Western Ontario, Canada
- Blair McWhorter Webb, *Assistant Clinical Professor of Otolaryngology*
M.D. 1955, University of Virginia
- Charles Richard Webb, *Assistant Clinical Professor of Pediatrics*
B.S. 1943, Canisius College; M.D. 1946, Georgetown University
- Charles Malcolm Weber, *Clinical Instructor in Radiology*
M.D. 1951, Georgetown University
- George Davis Weickhardt, *Assistant Clinical Professor of Neurology*
M.D. 1939, George Washington University

- Hans Weil-Malherbe, *Associate Clinical Professor of Psychiatry (Neurochemistry)*
M.D. 1929, University of Heidelberg, Germany; M.S. 1940, D.Sc. 1945, University of Durham, England
- John Russell Weimer, *Clinical Instructor in Ophthalmology*
B.S. 1946, University of Pittsburgh; M.D. 1948, Johns Hopkins University
- Morris Aaron Weinberger, *Assistant Clinical Professor of Pathology*
B.S. 1942, M.D. 1946, Tufts University
- Harold Weiner, *Associate Clinical Professor of Psychiatry (Experimental Psychology)*
B.B.A. 1953, City College, New York; M.A. 1957, Ph.D. 1960, University of Maryland
- Jacob Joseph Weinstein, *Assistant Clinical Professor of Surgery*
Phar.G. 1930, B.S. 1934, M.D. 1936, University of Maryland
- Paul Stephen Weisberg, *Assistant Clinical Professor of Psychiatry*
B.A. 1952, Harvard University; M.D. 1958, Marquette University
- Lowell Martin Weiss, *Clinical Instructor in Medicine*
B.S. 1957, Rutgers, the State University; M.D. 1962, George Washington University
- Herbert Weissbach, *Special Lecturer in Biochemistry (Vitamins)*
B.S. 1953, City College, New York; M.S. 1955, Ph.D. 1957, George Washington University
- Stephen Weissman, *Assistant Clinical Professor of Psychiatry*
B.A. 1959, Cornell University; M.D. 1963, Yeshiva University
- Isaac Weiszer, *Clinical Instructor in Medicine*
B.S. 1956, M.D. 1960, University of Illinois
- Don Wenger, *Associate Professor of Surgery*
B.A. 1934, University of Wisconsin; M.D. 1937, Marquette University; M.S. 1956, Georgetown University; LL.B. 1962, George Washington University
- Francis Liell Wenger, *Assistant Clinical Professor of Physical Medicine and Rehabilitation*
B.S. 1943, M.D. 1947, Georgetown University
- Sidney Lee Werkman, *Associate Clinical Professor of Psychiatry*
B.A. 1948, Williams College; M.D. 1952, Cornell University
- Milton William Werthmann, Jr., *Instructor in Pediatrics*
B.S. 1958, M.D. 1962, Georgetown University
- David Colwell Wherry, *Associate Clinical Professor of Surgery; Associate University Surgeon*
B.A. 1949, M.D. 1952, George Washington University
- George Erhardt White, *Clinical Instructor in Surgery*
B.A. 1954, M.D. 1957, George Washington University
- William Whitmore, Jr., *Assistant Professor of Medicine*
M.D. 1948, Medical College of Virginia
- Henry Sindos Wicker, *Assistant Professor of Ophthalmology*
B.S. 1948, Xavier University; M.D. 1953, Howard University
- Uthai Vincent Wilcox II, *Clinical Instructor in Radiology*
M.D. 1939, George Washington University
- Richard Wallace Wilkinson, *Associate Clinical Professor of Ophthalmology*
B.A. 1925, M.D. 1928, George Washington University; M.S. in Med. 1932, University of Pennsylvania
- Robert Shaw Wilkinson, *Assistant Clinical Professor of Medicine*
B.A. 1950, Dartmouth College; M.D. 1955, New York University
- Jonathan Marshall Williams, *Clinical Professor of Neurological Surgery*
M.D. 1938, University of Chicago
- Marjorie Joan Williams, *Assistant Clinical Professor of Pathology*
M.D. 1943, University of Bristol, England
- Eliot Charles Wilner, *Clinical Instructor in Neurology*
B.A. 1958, Columbia University; M.D. 1962, George Washington University

- Thomas Ashton Wilson, *Assistant Clinical Professor of Obstetrics and Gynecology*
B.A. 1942, M.D. 1944, George Washington University
- Alan William Winshel, *Clinical Instructor in Obstetrics and Gynecology*
B.A. 1948, Temple University; M.D. 1952, Hahnemann Medical College
- Theodore Winship, *Associate Clinical Professor of Pathology*
B.A. 1931, M.D. 1937, University of Nebraska
- Karl Wipplinger, *Assistant Professor of Medicine*
M.D. 1953, University of Vienna, Austria
- Philip Witorsch, *Clinical Instructor in Medicine*
B.A. 1958, M.D. 1962, New York University
- Mark Walton Wolcott, *Assistant Clinical Professor of Surgery*
B.A. 1937, Lehigh University; M.D. 1941, University of Pennsylvania
- Stanley Irving Wolf, *Associate Clinical Professor of Pediatrics*
B.S. 1947, M.D. 1948, Georgetown University
- Frederick William Wolff, *Professor of Medicine*
M.B., B.S. 1946, M.D. 1957, Durham University, England
- Herbert DeGrange Wolff, Jr., *Clinical Instructor in Urology*
M.D. 1929, University of Virginia
- Michael Aime Woodbury, *Assistant Clinical Professor of Psychiatry*
Ph.B. 1942, University of Paris, France; B.A. 1945, M.D. 1951, Harvard University
- Bernard Wortman, *Associate Research Professor of Ophthalmology*
B.A. 1948, Syracuse University; M.A. 1951, University of Texas; Ph.D. 1955, Ohio State University
- George Leonard Wright, Jr., *Assistant Professor of Microbiology*
B.A. 1959, Albion College; M.S. 1962, Ph.D. 1966, Michigan State University
- Thomas Mahlon Wright, *Assistant Clinical Professor of Surgery*
B.A. 1946, Washington and Lee University; M.D. 1951, University of Virginia
- Ching-Hui Wu, *Research Instructor in Medicine (Endocrine Research)*
M.B. 1959, National Taiwan University
- Alvin Charles Wyman, *Assistant Clinical Professor of Radiology*
B.A. 1939, Cornell University; M.D. 1943, New York University
- Jean Haroutian Yacoubian, *Associate Clinical Professor of Psychiatry*
B.A. 1947, M.D. 1951, American University at Beirut, Lebanon
- Harold Taylor Yates, *Clinical Instructor in Pediatrics*
M.D. 1941, University of Virginia
- Henry Yeager, Jr., *Assistant Professor of Medicine*
B.S. 1953, Southern Methodist University; M.D. 1957, Johns Hopkins University
- Leon Yochelson, *Professor of Psychiatry*
B.A. 1938, M.D. 1942, State University of New York at Buffalo
- Samuel Yochelson, *Clinical Professor of Psychiatry (Criminal Behavior)*
B.S. 1926, M.A. 1927, State University of New York at Buffalo; Ph.D. 1930, M.D. 1936, Yale University
- Stanley Yolles, *Clinical Professor of Psychiatry*
B.A. 1939, Brooklyn College; M.A. 1940, Harvard University; M.D. 1950, New York University; M.P.H. 1957, Johns Hopkins University
- Delosa Anthony Young, *Clinical Instructor in Pediatrics*
B.A. 1959, Loyola University, Louisiana; M.D. 1962, Louisiana State University
- Ira Sanders Young, *Clinical Instructor in Urology*
B.A. 1955, Lafayette College; M.D. 1959, George Washington University
- William Hurlburt Young, Jr., *Assistant Clinical Professor of Psychiatry*
B.S. 1942, Harvard University; M.D. 1945, University of Michigan
- Elmar Heinz Zeitler, *Assistant Clinical Professor of Pathology*
Ph.D. 1953, University of Würzburg, Germany

- Hyman Joseph Zimmerman, *Special Lecturer in Physiology*
B.A. 1936, University of Rochester; M.A. 1938, M.D. 1942, Stanford University
- Lorenz Eugene Zimmerman, *Clinical Professor of Ophthalmic Pathology*
B.A. 1943, M.D. 1945, George Washington University
- Mervin Harvey Zimmerman, *Clinical Instructor in Ophthalmology*
M.D. 1959, University of Toronto, Canada
- Edward Zimmermann, *Associate Clinical Professor of Obstetrics and Gynecology*
B.S. 1927, University of Dayton; M.D. 1931, St. Louis University
- William John Zukel, *Associate Clinical Professor of Epidemiology and Environmental Health*
B.S. 1943, University of Massachusetts; M.D. 1947, Hahnemann Medical College; Dr.P.H. 1961, London School of Hygiene and Tropical Medicine, England

Assistants in Research and Instruction 1968-69

- Edward Abramson, *Assistant in Surgery*
B.A. 1962, University of Pennsylvania; M.D. 1967, University of Virginia
- William Roy Adams, *Assistant in Obstetrics and Gynecology*
B.S. 1962, University of Utah; M.D. 1966, George Washington University
- Oscar Agüero, *Assistant in Surgery*
M.D. 1959, University of Havana, Cuba
- Angelo Anaclerio, *Assistant in Ophthalmology*
B.S. in Phar. 1958, M.D. 1962, University of Florida
- Anthony Edward Anderson III, *Assistant in Obstetrics and Gynecology*
M.D. 1965, George Washington University
- James Edward Anderson, *Assistant in Obstetrics and Gynecology*
B.A. 1955, Union College and University; M.D. 1965, Loma Linda University
- Aurelio Andrade, *Assistant in Urology*
M.D. 1959, University of Guayaquil, Ecuador
- Herman Barton Apfelbaum, *Assistant in Urology*
B.A. 1958, Dartmouth College; M.D. 1962, George Washington University
- Joseph Ardizzone, *Assistant in Physical Medicine and Rehabilitation*
B.S. 1949, Medical College of Virginia
- Lorgio Francisco Arteaga, *Assistant in Anesthesiology*
M.D. 1962, San Simon University, Bolivia
- Abdulla Albert Azar, *Assistant in Radiology*
B.A. 1951, University of Iowa; M.D. 1962, University of Innsbruck, Austria
- Reinhard Baethke, *Fellow in Medicine (Clinical Pharmacology)*
Arztl. Vorprüfung 1957, University of Göttingen, Germany
- Juan Carlos Basabe, *Fellow in Medicine (Clinical Pharmacology)*
M.D. 1962, University of Buenos Aires, Argentina
- Jonathan Beck, *Assistant in Medicine*
B.A. 1960, M.D. 1967, University of Iowa
- William Theodore Beck, *Fellow in Pharmacology*
B.A. 1964, Johns Hopkins University; M.S. 1968, State University of New York, Upstate Medical Center
- Edilberto Beltran, *Assistant in Anesthesiology*
M.D. 1958, University of Santo Tomas, Philippines
- George Clement Bentrem, *Assistant in Obstetrics and Gynecology*
B.S. 1961, Pennsylvania State University; M.D. 1965, University of Pennsylvania

- Peter Barney Berendsen, *Fellow in Anatomy*
B.S. 1960, St. Mary's College of California; M.S. 1965, George Washington University
- Frederick George Bergmann, *Assistant in Surgery*
B.A. 1963, Cornell University; M.D. 1967, Temple University
- Michael Leonard Berman, *Assistant in Obstetrics and Gynecology*
B.S. 1963, University of Maryland; M.D. 1967, George Washington University
- Chandrakant Kishinchand Bhatia, *Fellow in Medicine (Clinical Pharmacology)*
M.B., B.S. 1965, Seth G.S. Medical College, Bombay, India
- Rafik Boukhris, *Fellow in Medicine (Endocrinology)*
B.A. 1956, Sadiki, Tunisia; M.D. 1963, University of Paris, France
- Winslow Brabson, *Assistant in Obstetrics and Gynecology*
B.S. 1957, Trinity College, Connecticut; M.D. 1964, University of North Carolina
- John Richard Brewer, *Assistant in Psychiatry*
B.A. 1957, Humboldt State College; M.D. 1961, McGill University, Canada
- Chana Buakham, *Assistant in Anesthesiology*
M.D. 1962, Chulalongkorn University, Thailand
- Michael Peter Bucuvalas, *Fellow in Physiology*
B.S. 1965, Hillsdale College
- Richard Burk, *Assistant in Medicine*
B.A. 1963, Miami University; M.D. 1967, University of Cincinnati
- Edward Bernard Byrd, *Assistant in Surgery*
B.A. 1963, M.D. 1965, George Washington University
- Charles Carroll, *Assistant in Surgery*
B.A. 1960, Columbia University; M.D. 1965, New York University
- Shur-Shiang Chu, *Assistant in Anesthesiology*
M.D. 1960, Kaohsiung Medical College, Taiwan
- Ho Chung, *Fellow in Pharmacology*
B.S. 1962, Wisconsin State University, Oshkosh
- Blanca Annas Cinco, *Assistant in Anesthesiology*
M.D. 1958, University of Puebla, Mexico
- Alva Ben Clevenger, *Assistant in Pathology*
B.S. 1960, Central State College, Oklahoma; M.D. 1964, University of Oklahoma
- William James Cochrane, *Assistant in Obstetrics and Gynecology*
M.B., Ch.B. 1964, Glasgow University, Scotland
- Beth Collins, *Assistant in Obstetrics and Gynecology*
M.D. 1965, University of Virginia
- Edward William Dutton Colt, *Fellow in Medicine (Endocrinology)*
M.B., B.S. 1962, University of London, England
- Jaime Contreras, *Fellow in Medicine (Cardiology)*
Med.B. 1962, San Marcos University, Peru; M.D. 1964, Cayetano Heredia University, Peru
- Donald Francis Cooney, *Assistant in Neurological Surgery*
B.S. 1959, King's College, Pennsylvania; M.D. 1965, University of Pittsburgh
- John Brown Craft, *Assistant in Anesthesiology*
B.A. 1959, Johns Hopkins University; M.D. 1963, Georgetown University
- Richard Leonard Dallow, *Assistant in Ophthalmology*
B.A. 1962, Princeton University; M.D. 1966, Columbia University
- Albert Thompson Dawkins, Jr., *Assistant in Medicine*
B.A. 1959, Western Maryland College; M.D. 1963, University of Maryland
- Michael Terrance Donohue, *Assistant in Medicine*
M.D. 1965, George Washington University
- Paul Austin Dorn, Jr., *Assistant in Ophthalmology*
B.A. 1953, St. Anselm's College; M.D. 1965, Georgetown University

- Stephen Drogin, *Assistant in Medicine*
B.A. 1963, Columbia University; M.D. 1967, State University of New York, Downstate Medical Center
- Richard Reed Drummond, *Assistant in Surgery*
B.A. 1964, M.D. 1967, George Washington University
- Mary Frances Kelly Ericksen, *Fellow in Anatomy*
B.A. 1947, Indiana University; M.A. 1957, Columbia University
- John Loyd Everly, *Fellow in Anatomy*
B.S. 1960, Pennsylvania State College, California; M.S. 1965, George Washington University
- Joel Falik, *Assistant in Neurological Surgery*
B.A. 1961, Washington and Jefferson College; M.D. 1966, Hahnemann Medical College
- Kang Fan, *Assistant in Pathology*
M.D. 1963, National Taiwan University
- Abdull Fayyad, *Assistant in Obstetrics and Gynecology*
M.D. 1963, Damascus University, Syria
- Harris Joseph Feldman, *Assistant in Radiology*
B.A. 1963, Western Maryland College; M.D. 1967, University of Maryland
- Renato Felizmena, *Assistant in Anesthesiology*
M.D. 1954, University of Santo Tomas, Philippines
- Newton Joseph Fernandez, *Fellow in Microbiology*
B.S. 1961, University of Bombay, India; M.S. 1965, University of Minnesota
- Charles Joseph Filipi, *Assistant in Surgery*
B.S. 1963, M.D. 1967, University of Iowa
- Robert George Filpi, *Assistant in Surgery*
B.S. 1961, University of the Pacific; M.D. 1965, George Washington University
- Peter Harvey Fishman, *Fellow in Biochemistry*
B.S. 1961, Massachusetts Institute of Technology; M.S. 1967, George Washington University
- Richard Flax, *Assistant in Surgery*
M.D. 1966, University of Maryland
- Gerald Michael Fleischner, *Assistant in Medicine*
B.A. 1959, Lafayette College; M.D. 1963, George Washington University
- Harry Stephen Fletcher, *Assistant in Surgery*
B.S. 1963, Mount St. Mary's College, Maryland; M.D. 1967, George Washington University
- Eleanor Flores, *Assistant in Medicine*
M.D. 1961, University of Santo Tomas, Philippines
- Ulla M-Sor Fortune, *Assistant in Orthopaedic Surgery*
M.D. 1965, George Washington University
- William Patrick Fortune, *Assistant in Orthopaedic Surgery*
B.S. 1958, Springfield College; M.D. 1965, George Washington University
- Judith Gardner, *Assistant (Trainee) in Psychiatry*
B.A. 1961, Vassar College; M.D. 1966, University of Michigan
- Susan Lynn Gartner, *Fellow in Biochemistry*
B.A. 1963, Goucher College; M.S. 1965, George Washington University
- Phillip George, *Assistant in Surgery*
B.S. 1961, Pennsylvania State University; M.D. 1965, University of Miami
- Brian Gibbons, *Assistant in Orthopaedic Surgery*
B.A. 1962, Fordham University; M.D. 1966, Georgetown University
- Joseph Martin Giordana, *Assistant in Surgery*
B.A. 1963, Georgetown University; M.D. 1967, Jefferson Medical College of Philadelphia
- Lilia Giron-Banzon, *Assistant in Anesthesiology*
M.D. 1959, University of Santo Tomas, Philippines
- Erich Golob, *Fellow in Medicine (Endocrinology)*
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- Ignacio Tellez Gomez, *Assistant in Surgery*
M.D. 1962, University of Mexico
- William Gorbunoff, *Assistant in Medicine*
B.A. 1963, Grinnell College; M.D. 1967, University of Iowa
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B.A. 1960, Bryn Mawr College; M.D. 1967, George Washington University
- George Grigsby, Jr., *Assistant in Medicine*
B.A. 1962, M.D. 1966, University of North Carolina
- Joseph Grosso, *Assistant in Pathology*
M.D. 1966, New Jersey College of Medicine and Dentistry
- Jose Cruz Guinto, *Assistant in Radiology*
M.D. 1966, University of the Philippines
- Howard David Gunlock, *Assistant in Surgery*
M.D. 1963, Duke University
- Carolyn Myrick Hardin, *Fellow (Trainee) in Physiology*
B.A. 1958, M.A. 1959, George Washington University
- Eugene Jutson Harper, *Assistant in Surgery*
M.D. 1967, Duke University
- Jack Wayne Harvey, *Assistant in Orthopaedic Surgery*
B.S. 1959, M.D. 1963, George Washington University
- Robert Heilen, *Assistant in Orthopaedic Surgery*
B.Ch.E. 1957, Cooper Union; M.D. 1964, New York University
- Lester Franklin Henry, Jr., *Assistant in Surgery*
B.A. 1959, West Virginia University; M.D. 1963, Medical College of Virginia
- James Hepp, *Assistant in Radiology*
M.D. 1965, Union College and University
- Paul Quay Herwick, *Assistant in Surgery*
B.S. 1960, University of Pittsburgh; M.D. 1965, George Washington University
- David Paul Houchens, *Fellow in Microbiology*
B.S. 1959, Stetson University; M.S. 1964, George Washington University
- Richard Huberman, *Assistant in Ophthalmology*
B.S. 1959, City College, New York; M.D. 1963, Chicago Medical School
- Jung Chun Hyun, *Fellow in Biochemistry*
B.S. 1965, Seoul National University, Korea; M.S. 1968, George Washington University
- Manuel Insignares, *Assistant in Anesthesiology*
M.D. 1958, Xavier Pontifical University, Colombia
- Joanne Veronica Jablonski, *Teaching Fellow in Pharmacology*
B.A. 1968, Elmira College
- Mehdi Jandaghi, *Assistant in Obstetrics and Gynecology*
M.D. 1956, Tehran School of Medicine, Iran
- Esther Janowsky, *Assistant in Anesthesiology*
B.S. 1962, M.D. 1965, University of California, San Francisco
- Thomas Llewellyn Jones, Jr., *Assistant in Obstetrics and Gynecology*
M.D. 1965, George Washington University
- George Joseph, *Assistant in Psychiatry*
M.D. 1955, Bucharest Medical School, Romania
- Mohini Kaushik, *Fellow (Postdoctoral Trainee) in Physiology*
B.S. 1955, S.P. College Srinagar, Kashmir, India; M.B., B.S. 1960, University of Delhi, India
- Gerald Kessler, *Assistant in Medicine*
M.D. 1962, Yeshiva University
- Michael Anwar Khan, *Assistant in Anesthesiology*
M.B., B.S. 1962, King Edward Medical College, Pakistan
- Nguyen Ba Khoi, *Assistant in Medicine*
M.D. 1959, Saigon Medical School, Vietnam

- Hun Kim, *Assistant in Anesthesiology (Oral Surgery)*
M.D. 1958, Dental College, Seoul National University, Korea
- Yoon Choul Kim, *Assistant in Radiology*
M.D. 1963, Yonsei University, Korea
- Amnath Kirdnual, *Assistant in Obstetrics and Gynecology*
M.D. 1963, University of Medical Sciences, Thailand
- Panpit Klug, *Assistant in Medicine*
M.D. 1955, University of Medical Sciences, Thailand
- Spiridon Koulouris, *Fellow in Neurological Surgery*
M.D. 1960, University of Thessaloniki, Greece
- Melvin Krinn, *Assistant in Ophthalmology*
M.D. 1965, University of Illinois
- David Lloyd Lanter, *Assistant in Ophthalmology*
B.S. 1959, Queens College, New York; M.D. 1963, New York Medical College
- Erika Mechthild Latchis, *Assistant in Obstetrics and Gynecology*
Physikum 1959, University of Würzburg, Germany; M.D. 1963, University of Munich, Germany
- Kenneth Spero Latchis, *Assistant in Surgery*
B.A. 1957, Brown University; M.D. 1961, University of Vermont
- Vivian Paula Rule Lauderdale, *Fellow in Physiology*
B.S. 1968, George Washington University
- Jong Lee, *Assistant in Obstetrics and Gynecology*
M.D. 1959, Seoul National University, Korea
- Ralph Isaac Lipman, *Fellow (Postdoctoral Trainee) in Physiology*
B.S. 1962, George Washington University; Ph.D. 1968, Case Western Reserve University
- Peter Lizas, *Assistant in Anesthesiology*
M.D. 1959, University of Athens, Greece
- Carl Douglas Lord, *Assistant in Obstetrics and Gynecology*
M.D. 1966, Loma Linda University
- Francis Lumia, *Assistant in Medicine*
B.A. 1963, M.D. 1967, University of Chicago
- Truett Maddox, *Assistant in Neurological Surgery*
B.A. 1963, Texas Western University; M.D. 1967, Southwestern University
- Shakuntla Devi Mahajan, *Assistant in Anesthesiology*
M.B., B.S. 1961, Christian Medical College, Panjab University, India
- Robert Margie, *Assistant in Medicine*
B.A. 1960, Haverford College; M.D. 1964, Temple University
- Robert Martin, *Assistant in Medicine*
B.S. 1960, Eastern Mennonite College; M.D. 1964, Hahnemann Medical College
- Esmail Masoud-pour, *Assistant in Orthopaedic Surgery*
M.D. 1960, University of Tehran, Iran
- George Mathew, *Assistant in Medicine*
M.B., B.S. 1963, Kasturba Medical College, India
- Boonsong Maturosakul, *Assistant in Medicine*
M.D. 1957, Chulalongkorn University, Thailand
- Jerome Stephen Mayersak, *Assistant in Urology*
B.A. 1960, Johns Hopkins University; M.D. 1964, George Washington University
- Daniel Sylvester Mazzuchi, *Fellow in Medicine (Renal Diseases)*
B.S. 1961, College of the Holy Cross; M.D. 1965, George Washington University
- David Wayne McCandless, *Fellow in Anatomy*
B.S. 1967, University of Cincinnati
- Richard McConnaughy, *Assistant in Medicine*
M.D. 1963, University of Michigan

Herman Howard Miller, *Fellow in Pharmacology*

B.S. 1967, Tulane University of Louisiana

Austin Lyn Moede, *Fellow in Medicine (Hematology)*

B.A. 1959, University of California, Berkeley; M.D. 1963, George Washington University

Andrew Molchon, *Assistant (Trainee) in Psychiatry*

B.A. 1963, Yale University; M.D. 1967, Tufts University

Sung Moon, *Assistant in Anesthesiology*

M.D. 1960, Yonsei University, Korea

Barbara Lynne Nylund Morgan, *Fellow in Physiology*

B.S. 1965, University of New Mexico

Julio Moros, *Assistant in Medicine*

M.D. 1963, Central University of Venezuela

Sally Ann Mulhern, *Thomas Bradford Sanders Fellow in Biochemistry*

B.S. 1966, Marymount College, New York; M.S. 1968, George Washington University

Edwin Curran Murphy, Jr., *Fellow in Microbiology*

B.A. 1965, Catholic University of America

Gurbux Hariram Nachnani, *Assistant in Medicine (Cardiology)*

M.B., B.S. 1962, B.J. Medical College, University of Poona, India

Peter Naumoff, *Assistant in Radiology*

M.D. 1941, University of Munich, Germany

Parvaneh Navaee, *Assistant in Obstetrics and Gynecology*

M.D. 1964, University of Tehran, Iran

Parviz Navidi, *Assistant in Anesthesiology*

M.D. 1964, Pahlevi University, Iran

Barbara Neilan, *Assistant in Medicine*

B.A. 1961, Chatham College; M.D. 1966, New Jersey College of Medicine and Dentistry

Donald Lee Neugebauer, *Fellow in Microbiology*

B.A. 1953, M.A. 1955, University of South Dakota

Richard Austin Nicklas, *Assistant in Medicine*

B.A. 1958, Cornell University; M.D. 1964, George Washington University

Peter Nolan, *Assistant in Surgery*

M.D. 1966, Temple University

Suwattana Nontasut, *Assistant in Radiology*

M.D. 1961, University of Medical Sciences, Thailand

Faith Karola Filipiak Nzelibe, *Fellow in Epidemiology and Environmental Health*

B.A. 1964, Hiram College

Casimiro Oandasan, Jr., *Assistant in Anesthesiology*

M.D. 1962, University of the East, Philippines

Mary Vincentia O'Donnell, *Assistant in Medicine*

B.S. 1961, John Carroll University; M.D. 1965, Woman's Medical College of Pennsylvania

Hoan Oen, *Assistant in Medicine*

M.D. 1960, University of Indonesia

Paul Parrino, *Fellow in Physical Medicine and Rehabilitation*

M.D. 1931, Tulane University of Louisiana; C.P.H. 1937, M.P.H. 1939, Johns Hopkins University

Forough Parsa, *Assistant in Medicine*

B.S. 1961, M.D. 1965, Medical School of Geneva, Switzerland

Eliseo Paulino, *Assistant in Obstetrics and Gynecology*

M.D. 1963, University of Santo Tomas, Philippines

Susan Marie Pember, *Fellow in Microbiology*

B.A. 1966, State University of New York, College at New Paltz

Manoochehr Pooya, *Fellow in Medicine (Cardiology)*

M.D. 1961, University of Tehran, Iran

- Ana Maria Nicolao Pretell, *Assistant in Anesthesiology*
M.D. 1953, University of Havana, Cuba
- Oiga Rossie Pruna, *Fellow in Physical Medicine and Rehabilitation*
M.D. 1947, University of Havana, Cuba
- William Pugh, *Assistant in Surgery*
M.D. 1963, University of Indiana
- Ralph Gavino Pumaren, *Assistant in Anesthesiology*
M.D. 1964, University of the East, Philippines
- Lawrence Theodore Purcell, *Assistant in Urology*
B.A. 1959, Dartmouth College; M.D. 1963, George Washington University
- Jose Ramon-Lamus, *Assistant in Anesthesiology*
M.D. 1962, National University of Colombia
- Norman Rapp, *Assistant in Medicine*
B.S. 1963, M.D., C.M. 1967, McGill University, Canada
- Joel Reiskin, *Assistant in Medicine*
M.D. 1963, Bowman Gray School of Medicine
- Sanford Richman, *Assistant in Medicine*
M.D. 1964, Medical College of Georgia
- Rita Rigor, *Assistant in Obstetrics and Gynecology*
M.D. 1965, University of Santo Tomas, Philippines
- Surendra Ramchandra Rishi, *Fellow in Medicine (Endocrinology)*
M.B., B.S. 1953, M.D. 1957, Grant Medical College of Bombay, India
- Myron Rose, *Assistant in Obstetrics and Gynecology*
B.A. 1958, Brooklyn College; M.D. 1967, University of Missouri
- David Rosen, *Assistant in Surgery*
B.A. 1959, Brooklyn College; M.D. 1963, State University of New York, Upstate Medical Center
- Francisco Rovira, *Assistant in Psychiatry*
Licenciado 1965, Faculty of Medicine, Barcelona, Spain
- Gil Ruiz, *Fellow in Medicine (Rheumatology)*
M.D. 1963, University of Santo Tomas, Philippines
- Robert Henry Rumana, *Assistant in Medicine*
B.A. 1962, Rutgers, the State University; M.D. 1966, George Washington University
- Luanne Ruona, *Assistant in Psychiatry*
B.A. 1963, Northern Michigan University; M.D. 1967, University of Michigan
- Catherine Margaret Ryan, *Assistant in Physical Medicine and Rehabilitation*
B.S. 1954, Creighton University
- Nakamichi Saito, *Assistant in Obstetrics and Gynecology*
M.D. 1965, Kyushu University, Japan
- Hernando Salcedo, *Assistant in Urology*
M.D. 1962, Xavier Pontifical University, Colombia
- Mustafa Saleem, *Assistant in Medicine*
M.D. 1962, University of Baghdad, Iraq
- Mary Kay Salto, *Assistant in Anesthesiology*
B.A. 1960, M.D. 1964, George Washington University
- Francisco Sanchez, *Assistant in Surgery*
M.D. 1966, University of Oklahoma
- Judy Sandique, *Assistant in Anesthesiology*
M.D. 1966, University of Santo Tomas, Philippines
- Steven Matthew Sandor, *Assistant in Obstetrics and Gynecology*
M.B., Ch.B. 1964, University of Edinburgh, Scotland
- Rolando Santos, *Assistant in Medicine*
M.D. 1963, University of the East, Philippines
- Rajindra Kumar Sarin, *Fellow in Medicine (Cardiology)*
M.B., B.S. 1962, Panjab University, India

- Robert Clarence Saunders, *Assistant in Medicine*
B.A. 1962, University of Washington; M.D. 1967, George Washington University
- Arnould Scaffidi, *Assistant in Ophthalmology*
B.S. 1959, M.D. 1966, Medical College of Virginia
- Neil Schaul, *Assistant in Medicine*
B.A. 1962, Rutgers, the State University; M.D. 1966, State University of New York, Downstate Medical Center
- Robert Diane Whiting Scherer, *Fellow (Predoctoral Trainee) in Physiology*
B.A. 1967, Thiel College
- Gerhart Ramirez Schon, *Assistant in Surgery (Plastic)*
M.D. 1960, University of Puerto Rico
- Frances Pierce Schuler, *Fellow in Anatomy*
B.S. 1952, Birmingham-Southern College; M.S. 1954, Emory University
- George Scott, *Assistant in Medicine*
M.D. 1966, Duke University
- William James Scott, Jr., *Fellow in Anatomy*
D.V.M. 1961, University of Georgia
- Myron Lee Seligman, *Fellow in Pharmacology*
B.A. 1965, Johns Hopkins University
- Houchang Sendi, *Assistant in Surgery (Plastic)*
B.S. 1953, M.D. 1957, University of Geneva, Switzerland
- Sol Shaz, *Assistant in Surgery*
B.S. 1949, M.S. 1951, McGill University, Canada; M.D. 1953, University of Ottawa, Canada
- Yih-Fu Shiau, *Fellow in Physiology*
Med.B. 1966, Taipei Medical College, Taiwan
- William Charles Silberman, *Assistant in Pathology*
B.A. 1958, M.D. 1961, George Washington University
- Kumar Balkunth Singh, *Assistant in Medicine*
M.B., B.S. 1960, Medical College of Nagpur, India
- Mridula Singh, *Assistant in Pathology*
B.S. 1961, Ewing Christian College, India; M.B., B.S. 1966, Lady Hardinge Medical College, India
- Joseph Snyder, *Assistant in Ophthalmology*
M.D. 1962, Jefferson Medical College of Philadelphia
- Robert Edward Sobel, *Thomas Bradford Sanders Fellow in Biochemistry*
B.A. 1962, Columbia University; M.S. 1966, George Washington University
- Mandell Don Stearman, *Assistant in Radiology*
B.A. 1961, M.D. 1964, George Washington University
- Howard Nau Stewart, *Assistant in Orthopaedic Surgery*
B.S. 1953, George Washington University; M.D. 1957, University of Virginia
- George Weldon Strother, *Assistant in Medicine*
B.S. 1960, University of Pittsburgh; M.D. 1965, George Washington University
- Reina Sumner, *Assistant in Anesthesiology*
M.D. 1966, University of the East, Philippines
- Michael Jon Sylvester, *Assistant in Medicine*
B.S. 1963, University of Wisconsin; M.D. 1967, George Washington University
- Charles John Tegtmeyer, *Assistant in Radiology*
B.A. 1961, Colgate University; M.D. 1965, George Washington University
- Anne Thompson, *Assistant in Medicine*
B.A. 1963, Immaculate College, Pennsylvania; M.D. 1967, Jefferson Medical College of Philadelphia
- William Frederic Thompson, *Assistant in Psychiatry*
B.S. 1963, City College, New York; M.D. 1967, George Washington University
- Frank Virnelli, *Assistant in Surgery*
B.A. 1960, B.M.S. 1961, Dartmouth College; M.D. 1963, Harvard University

- Arthur Virshup, *Assistant in Medicine*
B.A. 1963, Yale University; M.D. 1967, State University of New York, Upstate Medical Center
- David Wanicur, *Assistant in Ophthalmology*
B.A. 1961, M.D. 1965, University of Pennsylvania
- Frederick Arthur Weinhardt, *Fellow in Microbiology*
B.S. 1963, Valparaiso University; M.S. 1965, Ohio State University
- Robert Marion Wilson, *Assistant in Medicine*
B.S. 1959, M.D. 1966, George Washington University
- Alan Frederick Wolf, *Assistant in Ophthalmology*
B.S. 1963, M.D. 1967, University of Maryland
- Hock Yeoh, *Assistant in Medicine*
B.A. 1961, Ripon College; M.D. 1966, University of Rochester
- John Yun, *Fellow in Physiology*
B.S. 1963, Tunghai University, Taiwan
- Errol Zeiger, *Fellow in Microbiology*
B.S. 1960, City College, New York
- Dennis Joseph Zeveney, Jr., *Assistant in Surgery*
B.S. 1960, King's College, Pennsylvania; M.D. 1966, George Washington University

Library

Isabella Frances Young, B.A. in L.S., *Librarian, Medical Library*



THE SCHOOL OF MEDICINE RECORD 1968-69

Degrees Conferred

DOCTOR OF MEDICINE

JUNE 2, 1968

Student Marshal: Howard Byron Dickler

Rodney Udell Anderson, Jr., Virginia
B.S. 1964, University of Utah
Stephen A. Anish, Maryland
B.A. 1964, Rutgers, the State University
John Lawrence Antus, District of Columbia
B.S. 1964, University of Notre Dame
Letha Kay Foss Barber, Virginia
(With Distinction)
B.S. 1961, Purdue University
Martin Chandler Beattie, Virginia
B.S. 1964, Washington State University
Donald Philip Bernstein, New Jersey
LeRoy Bernstein, Colorado
B.A. 1959, University of Colorado
Charles Joel Bier, District of Columbia
B.A. 1965, George Washington University
Charles Jerome Bleifeld, Maryland
B.A. 1964, Lafayette College
DeWitt Clinton Brown III, New York
B.A. 1964, Johns Hopkins University
Roland Esmond Buckalew, Virginia
Gian Battista Antonio Caggiano, District of Columbia
B.A. 1964, Catholic University of America
Denis Michael Carroll, Virginia
B.A. 1964, Stanford University
Robert Louis Cerciello, New Jersey
B.S. 1964, St. Peter's College, N.J.
John Ying Chew, California
B.A. 1964, University of California, Berkeley
Arthur Anthony Church, Massachusetts
B.A. 1964, Boston University
Nicholas Michael Cifelli, Jr., District of Columbia
B.A. 1964, Rutgers, the State University
Katharine Mary Clum, Maryland
B.S. 1964, George Washington University
Richard Fuller Collins, Jr., Maryland
B.A. 1964, Duke University

David Denton Davis, Jr., Connecticut
B.A. 1964, Providence College
Lynn Taylor Dayton, Wyoming
B.S. 1966, Brigham Young University
Paul Leslie DeWitt, Maryland
Howard Byron Dickler, Maryland
(With Distinction)
B.A. 1964, Johns Hopkins University
John Henry Dunston, District of Columbia
B.A. 1963, Lycoming College
Michael Comerford Egan, Pennsylvania
B.S. 1964, University of Scranton
Edward Michael Ehlers, District of Columbia
B.A. 1964, University of Connecticut
Mark Allan Feldman, New York
B.S. 1964, City College, New York
Marvin Jack Feldman, Maryland
(With Distinction)
B.A. 1965, George Washington University
David Charles Fischer, North Dakota
B.S. 1966, University of North Dakota
Kenneth Alan Fisher, Massachusetts
(With Distinction)
B.S. 1962, Tufts University
Joseph Benedict Fitzgerald, Pennsylvania
B.S. 1964, University of Scranton
Leah Thronson Fontaine, District of Columbia
(With Distinction)
B.A. 1964, Valparaiso University
Jack David Francis, District of Columbia
B.A. 1965, George Washington University
Stephen Howard Frye, Massachusetts
B.A. 1963, Boston University
Paul Theodore Gavaris, New Jersey
B.S. in Phar. 1961, Rutgers, the State University
Earl Richard Godwin, California
B.A. 1964, University of California, Los Angeles

Gerald Sanford Goldberg, Virginia
 B.S. 1964, University of Pittsburgh
 Lionel L. Gorbaty, New York
 B.A. 1964, Brooklyn College
 Philip Lawrence Hart, Virginia
 Sands Kenyon Irani, Virginia
 B.A. 1963, University of the South
 John Vincent Jansen, Virginia
 B.A. 1964, University of California, Berkeley
 Kenneth Roy Jungblut, New Jersey
 B.A. 1963, Rutgers, the State University
 Joseph Patrick Kennelly, Wyoming
 B.S. 1964, Brigham Young University
 John Dillard Kenny, Virginia
 B.S. 1964, University of Virginia
 Byron Francis King, Jr., Virginia
 B.A. 1964, West Virginia University
 Roy Douglas Kohl, Jr., Virginia
 B.A. 1964, Occidental College
 Charles Mellinger Kuhn, Pennsylvania
 Daniel Nicholas Kulund, Virginia
 B.A. 1962, Hofstra University
 Alan Richard Lawsky, Maryland
 (With Distinction)
 B.S. 1964, City College, New York
 Peter Dennis LeNard, District of Columbia
 B.S. 1964, George Washington University
 Jack Levenbrow, New York
 B.A. 1964, Yeshiva University
 Gary Mark Levin, Virginia
 B.A. 1964, University of Connecticut
 Robert Theodore Levine, New Jersey
 B.A. 1965, George Washington University
 Allan Williams Lohaus, District of Columbia
 B.A. 1968, Earlham College
 Ira Sanders Lourie, Maryland
 B.A. 1964, George Washington University
 Sidney S. Loxley, District of Columbia
 B.A. 1965, George Washington University
 Raymond Clifford Lumb, Maryland
 B.S. 1964, University of Maryland
 Gordon Rhodes MacDonald, Jr., Maryland
 (With Distinction)
 Daniel Frank Marcus, New York
 B.A. 1964, Washington University
 Osamu Harold Matsutani, California
 B.A. 1963, M.S. 1965, University of California, Los Angeles
 Anthony Michael Melchionda, Connecticut
 B.S. 1964, King's College
 Barbara Meyer Meyers, District of Columbia
 (With Distinction)
 B.A. 1961, Bryn Mawr College
 Bruce Arnold Miller, New York
 B.A. 1964, Lafayette College
 Michael Harrison Miller, New York
 B.S. 1964, Bates College
 Myron Irwin Murdock, Maryland
 B.A. 1964, Boston University
 Margaret Ann Nelsen, Maryland
 B.A. 1965, George Washington University
 Anthony Joseph Nicolette, Jr., Virginia
 B.A. 1963, Washington and Jefferson College
 Richard Daniel Notes, District of Columbia
 B.A. 1964, University of Pennsylvania
 Richard Rice Ober, Virginia
 B.A. 1963, Occidental College
 Dale William Oller, Pennsylvania
 B.A. 1964, Franklin and Marshall College
 Phillip Michael Olmstead, Ohio
 B.A. 1964, Case Western Reserve University

Miyoko Ouchi, California
 B.A. 1963, University of Southern California
 Karen Joan Pacella, District of Columbia
 B.A. 1964, Manhattanville College of the Sacred Heart
 John Raymond Park, Maryland
 B.S. 1964, Marquette University
 Gibbe Hull Parsons, California
 B.A. 1964, San Jose State College
 Alan Stephen Peiken, Florida
 B.S. 1964, University of Chicago
 John Richard Thomas Reeves III, District of Columbia
 B.A. 1965, George Washington University
 Morton Jay Roberts, Pennsylvania
 B.A. 1964, Franklin and Marshall College
 Carl Jan Rothschild, Maryland
 B.A. 1965, George Washington University
 John James Rowsey, Jr., Virginia
 B.A. 1965, George Washington University
 Lewis Rubin, New York
 B.S. 1964, City College, New York
 Gary Edward Russolillo, Massachusetts
 B.A. 1964, University of Pennsylvania
 George Anthony Sample, Virginia
 B.A. 1964, West Virginia University
 Charles Isaac Schneiderman, New Jersey
 B.A. 1964, University of Michigan
 Joan Rice Sealy, District of Columbia
 B.A. 1964, University of Chicago
 Lee Jenkins Secrist, Arizona
 B.A. 1964, Stanford University
 Arthur William Simington, Pennsylvania
 B.A. 1964, Dartmouth College
 Earle Robert Sloan, California
 B.A. 1964, Stanford University
 James Weaver Smith, Idaho
 B.S. 1964, College of Idaho
 Arthur Joel Sober, District of Columbia
 (With Distinction)
 B.A. 1965, George Washington University
 Kenneth Andrew Spano, New York
 B.S. 1964, St. John's University, N. Y.
 Ira Lawrence Spar, New York
 B.A. 1964, Queens College, N. Y.
 Edward Chipman Spencer, Virginia
 B.S. 1964, University of Utah
 Larry Lee Stoneburner, Ohio
 B.A. 1962, Ohio State University
 Edward Joseph Taylor, Virginia
 B.S. in Phar. 1963, University of Connecticut
 Martin Jay Turetsky, Maryland
 B.A. 1964, Cornell University
 Albert Hubert Van Nieuwenhuize, Virginia
 B.A. 1964, Brown University
 Vitolds Charles Vitums, Virginia
 B.S. 1959, Washington State University
 D.D.S. 1962, University of Washington
 David Albert Walden, District of Columbia
 B.S. 1964, University of Utah
 Edmond Clair Watters, Pennsylvania
 B.S. 1964, College of William and Mary
 David Brian Williams, Massachusetts
 B.S. 1964, University of Massachusetts
 Stephen Bernard Young, New York
 B.A. 1964, Columbia University
 Richard Lee Zeaske, Iowa
 B.A. 1963, Johns Hopkins University
 Joseph Matthew Zeterberg, New York
 B.S. 1964, Mount St. Mary's College, Md.
 James Harrison Ziegler, New Jersey
 B.A. 1963, Johns Hopkins University

Students Registered 1968-69

FIRST YEAR

Adams, Anthony W. B.S. 1968, Virginia Polytechnic Institute	Va.	Elam, Kenneth C. B.S. 1968, Muhlenberg College	N.J.
Alarcon, Pedro A. De B.A. 1968, Harvard University	Guatemala	Exner, John H. B.S. 1968, College of Idaho	Idaho
Althoff, Rodger W. B.A. 1968, Kent State University	Ohio	Fine, Anne Elizabeth H. Attended George Washington University	Calif.
Ammerman, Bruce J. Attended Case Western Reserve University	Md.	Foeller, Carl W., Jr. B.S. 1968, Duke University	R.I.
Annos, Thomas B.A. 1968, University of Pennsylvania	Del.	Fox, Sherman S. B.A. 1968, Johns Hopkins University	N.J.
Apter, Matthew N. B.S. 1968, Trinity College, Conn.	Conn.	Franklin, John M. B.S. 1968, University of Washington	Wash.
Apter, Roy J. B.A. 1968, University of Wisconsin	Wis.	Gadd, James D. B.S. 1967, Arizona State University	Colo.
Barnard, Margaret E. B.S. 1967, Dalhousie University, Canada	Canada	Georges, Britton L. B.S. 1968, University of Washington	Wash.
Becker, Stuart A. B.A. 1968, Lafayette College	N.J.	Giannuzzi, Vito A. B.S. 1968, George Washington University	N.Y.
Bergman, Stuart K. B.A. 1968, University of Virginia	N.J.	Goldman, Robert L. B.A. 1968, University of Pennsylvania	D.C.
Binder, Marc K. Attended Pennsylvania State University	Pa.	Goldman, S. Richard B.A. 1968, University of Florida	Fla.
Bis, Kathleen A. B.S. 1968, George Washington University	N.J.	Griffiths, Richard C. B.S. 1968, Michigan State University	Va.
Blonar, Robert A. B.S. 1968, George Washington University	Md.	Harris, Jeffrey D. B.A. 1968, Hofstra University	N.Y.
Bondell, Steven P. B.S. 1968, City College, New York	N.Y.	Hellogg, Maxwell A. B.A. 1968, Grinnell College	Md.
Brancaccio, Ronald R. B.S. 1968, Fairfield University	N.Y.	Hunter, Robert J. B.A. 1968, Franklin and Marshall College	Pa.
Bransfield, Robert C. B.A. 1968, Rutgers, the State University	N.J.	Jackson, Paul V. B.S. 1968, U.S. Air Force Academy	Va.
Briggs, Charles M. B.A. 1965, University of Pennsylvania	Va.	Johnson, Steele R. B.A. 1966, University of Washington	Wash.
Brooks, Betty L. Attended University of Michigan	Pa.	Joseph, Raymond E. B.S. 1968, Ohio State University	Ohio
Campbell, Darrell A., Jr. B.S. 1968, Michigan State University	Mich.	Juel, Randolph W. B.A. 1968, University of Washington	Wash.
Cerruti, Michael A. B.A. 1966, University of California, Berkeley	Calif.	Kassan, Stuart S. B.A. 1968, Case Western Reserve University	N.Y.
Chapin, Donald C. B.A. 1968, Tufts University	Md.	Katlan, Roberta L. B.S. 1968, Simmons College	N.Y.
Cowin, John A. B.A. 1968, Gettysburg College	N.Y.	Katz, Jeffrey I. B.A. 1968, Clark University	N.Y.
Craft, J. Carl B.A. 1968, California Western University	Utah	Katzen, Jay E. B.A. 1967, George Washington University	D.C.
Daines, Stephen P. Attended Utah State University of Agriculture and Applied Science	Utah	Kaufman, Joseph H. B.A. 1963, New York University	N.Y.
Daly, Joseph T. B.A. 1967, University of California, Davis	Calif.	Kessler, Michael A. B.A. 1968, Rutgers, the State University	N.J.
Davis, Christopher J. B.S. 1968, Massachusetts Institute of Technology	Calif.	Kiessling, Brenda R. B.A. 1962, Oberlin College	Va.
Dent, H. Joy B.S. 1968, University of Washington	Wash.	M.A. in Ed. 1964, George Washington University	Calif.
Diaz, Carlos R. B.A. 1968, Johns Hopkins University	Md.	Kimball, Richard R. B.A. 1967, University of California, Riverside	Calif.
Donaldson, Mary M. B.A. 1968, Sweet Briar College	Md.	King, Don R. B.S. 1968, University of Redlands	Md.
Donohue, Dennis J. B.S. 1966, St. John's University, N.Y.	Md.	King, Patricia B.S. 1966, University of Maryland	Del.
Ehrlich, Leonard D. B.A. 1968, Hunter College	N.Y.	Kirby, Richard L. B.A. 1968, University of Delaware	Va.
Eisenbaum, Allan M. Attended George Washington University	N.Y.	Knudson, Homer E. B.S. 1968, Brigham Young University	

STUDENTS REGISTERED 137

Korengold, George M. B.A. 1968, University of Pennsylvania	Md.	Reff, Richard B. Attended George Washington University	Md.
Kraut, Eric H. B.A. 1968, Franklin and Marshall College	N.J.	Roe, James B. B.A. 1966, Stanford University	Ill.
Kravitz, Paul H. B.S. 1968, George Washington University	N.Y.	Rotstein, Martha B.S. 1968, Simmons College	Mass.
Krzyzkowski, Michael J. B.S. 1968, Wagner College	N.J.	Schenk, Joseph H. B.A. 1968, LaSalle College	Md.
Leva, Leo M. B.A. 1968, Swarthmore College	Md.	Scherf, Chrisman G. B.S. 1968, Duke University	N.Y.
Leventhal, Stuart P. B.S. 1968, University of Pittsburgh	N.J.	Schulz, Robert W. Attended George Washington University	Fla.
Lichtenstein, Alan K. B.A. 1968, Brooklyn College	N.Y.	Schweitz, Michael C. Attended George Washington University	Md.
Loube, Julian M. B.A. 1967, George Washington University	Md.	Selsby, Marc A. B.A. 1968, State University of New York at Binghamton	N.Y.
Lucas, John H., Jr. B.S. 1968, University of Maryland	Md.	Seltzer, Shalom D. Attended Tulane University of Louisiana	D.C.
Marion, Edward D. Attended George Washington University	N.Y.	Shreeve, Thomas L. B.A. 1968, Franklin and Marshall College	Md.
McCarthy, Patrick J. B.A. 1968, LaSalle College	Md.	Sklaver, Allen R. B.A. 1968, Williams College	Conn.
McClenathan, James H. Attended Carnegie-Mellon University	Md.	Snover, Seth W. B.S. 1968, Muhlenberg College	Pa.
Monteverde, Ronald P. B.S. 1968, Saint Peter's College, N.J.	N.Y.	Sonkens, Jerry W. B.S. 1967, Brigham Young University	Iowa
Mowery, James H. B.S. 1968, Northwestern University	Ill.	Street, Thomas F. B.S. 1968, John Carroll University	N.J.
Nash, Carl R. B.S. 1968, Yale University	N.J.	Surrey, Mark W. B.S. 1968, University of Pittsburgh	D.C.
Nickens, Wayne C. B.S. 1968, Howard University	D.C.	Swensen, Laird S. B.A. 1968, Brigham Young University	Utah
Nierman, Robert S. B.A. 1968, Boston University	Mass.	Theard, Franz C. B.A. 1968, Catholic University of America	Haiti
Noble, Donald E. B.A. 1968, George Washington University	Md.	Thompson, Charles E., Jr. B.A. 1968, University of Washington	Wash.
Olds, Corwin A. B.S. 1947, U.S. Naval Academy	Calif.	Thomson, Stephen T. B.S. 1968, Brigham Young University	Utah
B.S. in M.E. 1955, M.S. in M.E. 1956, U.S. Naval Postgraduate School		Thornton, Abigail G. B.S. 1965, M.S. 1967, George Washington University	D.C.
Oliff, Michael B.A. 1968, Rutgers, the State University	N.J.	Warchol, Richard J. B.A. 1967, Millikin University	Mass.
Orman, Ronald J. Attended University of Montana	Mont.	Weil-Malherbe, Jacqueline V. B.A. 1968, Antioch College	Md.
Parker, Frederick W., III B.S. 1968, University of Scranton	Pa.	Whitcraft, Daniel D., III B.A. 1968, University of California, Los Angeles	Calif.
Paul, David A. B.A. 1968, Rutgers, the State University	Md.	Winston, David H. B.A. 1968, State University of New York at Binghamton	N.Y.
Pearson, Michael L. B.S. 1968, Washington State University	Wash.	Zimmerman, Larry G. B.S. 1968, Colorado State University	Colo.
Peck, Dennis F. B.A. 1968, University of Washington	Wash.		
Pillsbury, Harold C., III Attended George Washington University	Md.		
Powell, Thomas R. B.A. 1968, Boston University	N.Y.		

SECOND YEAR

Abbott, Richard L. B.S. 1967, Tufts University	N.Y.	Barnes, Patricia J. B.A. 1966, Gettysburg College	N.J.
Adam, George B.A. 1967, New York University	N.Y.	Bikowski, Joseph B., Jr. B.A. 1967, LaSalle College	Md.
Aldrich, Stephen M. B.A. 1967, Whitman College	Wash.	Boyd, William D., II B.S. 1967, University of Maryland	Md.
Allen, Robert J. B.S. 1967, Brigham Young University	Utah	Brancaccio, Michael B.S. 1967, Fairfield University	N.Y.
Allgaier, Wayne B.S. 1967, Brigham Young University	Va.	Brener, George A. B.A. 1967, Boston University	Mass.
Babcock, Terence L. B.S. 1967, George Washington University	Md.	Browne, Allen F. B.A. 1967, Brown University	Calif.

138 SCHOOL OF MEDICINE

Browne, Madonna E.	Maine	Griffin, Ronald A.	D.C.
B.S. 1964, Duke University		B.A. 1967, George Washington University	Va.
Brunt, Roger S.	Idaho	Grogan, Thomas M.	
B.S. 1967, Brigham Young University		B.A. 1967, University of Virginia	N.Y.
Bush, Frank J.	Mass.	Gromet, Michael A.	N.Y.
B.A. 1967, University of Maine		B.A. 1967, New York University	N.Y.
Carson, Culley C.	Conn.	Gross, Howard J.	Md.
B.S. 1967, Trinity College, Conn.		B.S. 1967, Tufts University	
Chabalco, John J.	Pa.	Hanes, Verna E.	Md.
B.S. 1967, Muhlenberg College		B.A. 1968, George Washington University	Md.
Charlton, Brian L.	Md.	Harris, Robert J.	Calif.
B.A. 1967, Western Maryland College		B.A. 1968, George Washington University	N.J.
Chrisman, Allan K.	Md.	Holmes, John S.	
B.A. 1967, Lafayette College		B.A. 1967, San Fernando Valley State College	Calif.
Clark, John L.	Md.	James, William S.	D.C.
B.A. 1967, Franklin and Marshall College		B.A. 1967, Johns Hopkins University	Ohio
Cleary, John B.	N.Y.	Jan, Ronald G.	Texas
B.S. 1967, Niagara University		B.S. 1965, University of California, Berkeley	
Cleveland, Marcia C.	Va.	Kline, Philip S., Jr.	
B.S. 1967, Parsons College		B.A. 1965, University of Texas	
Corr, Charles A.	Conn.	Kuhr, Susan E.	
B.A. 1967, Wesleyan University		B.A. 1967, Yeshiva University	
Costa, Jack M.	N.J.	Kurstin, Ronald D.	
B.A. 1967, Gettysburg College		B.A. 1967, Tulane University of Louisiana	
Crawford, Joseph A.	N.Y.	Lee, Martin	
B.S. in E.E. 1960, Case Western Reserve University		B.A. 1966, Columbia University	
M.S. in E.E. 1964, Columbia University		Levy, Arnold G.	
Crossland, Stanley G.	Va.	B.A. 1968, George Washington University	
B.S. 1967, University of Richmond		Lojko, Edwin P.	
Dantzig, Paul I.	N.Y.	B.A. 1967, University of Virginia	
Attended Rensselaer Polytechnic Institute		Longo, Jane S.	
Darr, David L.	N.J.	B.A. 1967, University of Maine	
B.S. 1967, Muhlenberg College		McBeath, John B.	
Delmonico, Francis L.	N.Y.	Attended San Jose State College	
B.S. 1966, Mount St. Mary's College, Md.		Mendelson, Michael	
Dicus, Paul E.	Ariz.	B.A. 1965, C.W. Post College	
Attended University of Arizona		M.S. 1967, Rutgers, the State University	
Fine, Paul M.	Md.	Minars, Norman	
B.A. 1968, George Washington University		B.A. 1967, New York University	
Fitz-Henley, Norman H.	N.Y.	Moritsugu, Kenneth P.	
Attended City College, New York		B.A. 1967, University of Hawaii	
Frank, Sidney A.	Mass.	Newton, Roger	
B.A. 1967, Bowdoin College		B.A. 1967, Yale University	
Furlow, Thomas W., Jr.	Md.	Owens, David E.	
B.A. 1968, George Washington University		B.A. 1964, Wesleyan University	
Gardner, James S.	Mass.	M.S. 1965, University of Connecticut	
B.S. 1967, Trinity College, Conn.		Pash, Robert M.	
Garner, Steven C.	Mass.	B.A. 1967, Gettysburg College	
B.A. 1967, University of Massachusetts		Pett, Stephen D.	
Gens, John P., Jr.	Conn.	B.S. 1967, Seton Hall University	
B.S. 1967, Trinity College, Conn.		Polk, Norman O.	
Gerstein, Jared D.	N.Y.	B.A. 1967, Harvard University	
B.A. 1967, New York University		Potenza, Anthony R.	
Gibbons, Gary R.	Utah	Attended University of Pittsburgh	
B.S. 1967, Utah State University of Agriculture and Applied Science		Pugatch, Robert D.	
Gibson, Douglas W.	N.Y.	B.A. 1967, Johns Hopkins University	
B.S. 1966, Wagner College		Rainey, Edward C.	
Glowitz, Robert J.	Md.	B.S. 1967, George Washington University	
B.S. 1967, University of Maryland		Reed, Barry S.	
Goldstein, Howard S.	N.J.	B.A. 1967, University of Washington	
B.A. 1967, Colgate University		Rein, Richard A.	
Goodman, Clifford J., Jr.	Ariz.	B.A. 1967, University of Rochester	
Attended Arizona State University		Reisman, Jerald L.	
Gorman, Barry C.	Conn.	B.S. 1967, University of Michigan	
B.S. 1967, Tufts University		Roe, Lynn Diane	
Greenwood, Mark W.	Utah	B.A. 1967, Stanford University	
B.A. 1967, University of Utah		Romig, Bruce	
Gregg, David L.	Calif.	B.S. 1967, Duke University	
B.A. 1966, Northwestern University		Rosenberg, Robert L.	
		B.A. 1968, George Washington University	
		Ross, David B.	
		B.S. 1967, Cornell University	

STUDENTS REGISTERED 139

Ruben, Richard S. B.A. 1967, Northwestern University	Pa.	Travis, Barbara B. B.A. 1967, Bryn Mawr College	Md.
Schlachter, Steven A. B.S. 1967, St. Peter's College, N.J.	N.J.	Ungar, James R. B.A. 1967, George Washington University	N.J.
Schramm, Melinda M. B.S. 1967, Wheaton College, Ill.	Pa.	Urrutia-S., Carlos O. B.S. 1966, Georgetown University	El Salvador
Schulman, Brian M. B.A. 1968, George Washington University	N.Y.	Van Devanter, Stephen H. Attended George Washington University	Md.
Shapiro, Leslie A. B.A. 1967, New York University	N.Y.	Viener, Robert S. B.A. 1967, University of Pennsylvania	D.C.
Smith, Howard N. B.S. 1967, St. Peter's College, N.J.	N.J.	Watt, Albert J. B.A. 1967, Brown University	Ohio
Sonne, David D. B.S. 1968, University of Utah	Calif.	Weiss, Richard W. B.A. 1966, Cornell University	N.Y.
Spector, Robert H. B.A. 1967, Franklin and Marshall College	N.Y.	Whitley, Richard J. B.A. 1967, Duke University	N.J.
Starkweather, Roger J. B.A. 1967, Northwestern University	Va.	Woodward, Roger S. B.A. 1966, Stanford University	Calif.
Strauss, Barry L. B.A. 1967, Cornell University	N.Y.	Yip, Larry B.S. 1967, University of Washington	Wash.
Tan, Edwin C. B.S. 1967, Mount Union College	Thailand	Yoder, Paul T. B.S. 1967, Eastern Mennonite College	Va.
Tardiff, Jeffrey G. B.A. 1966, St. Michael's College	N.J.	Zieminski, John J. B.S. 1967, Fordham University	N.J.
Tauber, Ira B.A. 1967, Brooklyn College	N.Y.		

THIRD YEAR

Akerele, Flavius A. B.A. 1966, Boston University	Nigeria	Emmett, John R. B.S. 1965, Georgia Institute of Technology	Fla.
Alfas, Jules R. B.A. 1966, Arizona State University	Ariz.	Fine, Robert M. B.A. 1967, George Washington University	Md.
Anderson, Robert B.S. 1966, Michigan State University	Mich.	Ford, Gerald P. B.A. 1965, Brigham Young University	N.Y.
Andrus, Joseph M. B.S. 1965, Stanford University	Ky.	Freis, Peter C., Jr. B.S. 1966, St. Peter's College, N.J.	N.J.
Ascarelli, David E. B.S. 1966, State University of New York at Albany	N.Y.	Gardstein, Henry F., Jr. B.A. 1966, Franklin and Marshall College	N.Y.
Bageant, Thomas E. B.A. 1966, Western Maryland College	D.C.	Gerety, Robert J. B.A. 1962, Rutgers, the State University	N.J.
Balacki, John A. B.S. 1966, Canisius College	N.Y.	M.A. 1966, Ph.D. 1967, Stanford University	N.J.
Barefoot, Sherwood W., Jr. B.A. 1963, Duke University	N.C.	Gerkin, Peter R. Attended Temple University	N.Y.
Benkovic, Gregory W. B.A. 1966, Johns Hopkins University	Conn.	Goldberg, Jay S. B.A. 1966, State University of New York at Binghamton	Wash.
Bonar, Robert W. B.S. 1966, College of Idaho	Idaho	Goranson, Eric E. B.S. 1966, Washington State University	N.J.
Burton, Ronald C. B.S. 1965, University of Utah	Utah	Guyton, Kathryn K. B.S. 1966, Juniata College	Mont.
Canon, Dennis L. B.S. 1966, University of Arizona	N.M.	Hartz, Charles R. B.A. 1966, Concordia College, Moorhead, Minn.	Md.
Cesavatta, Andrew A., Jr. B.A. 1966, Franklin and Marshall College	Pa.	Heinze, Robert G. B.S. 1965, George Washington University	Ga.
Cerimele, Nicholas A. B.S. 1965, University of Pittsburgh	Ohio	Herndon, S. Paul, IV B.S. 1966, Georgetown University	N.J.
Christian, Donna-Marie T. B.S. 1966, St. Mary's College, Ind.	Virgin Islands	Higgins, Thomas E. B.S. 1966, Fordham University	Calif.
Clark, Leo Joseph P. B.S. 1966, University of Notre Dame	N.J.	Hill, Malcolm D. B.S. 1965, Stanford University	Conn.
Crittenden, Maureen E. B.S. 1966, Marquette University	D.C.	Hines, Edward L. D.D.S. 1967, Columbia University	Pa.
Davis, Gerald F. B.S. 1966, University of Missouri	N.Y.	Hirsch, Jack H. B.A. 1966, Washington and Jefferson College	Pa.
Delameter, James W. B.A. 1966, University of Washington	Wash.	Hoart, Barbara R. B.A. 1966, University of Pennsylvania	Calif.
Edwards, George G., Jr. B.A. 1966, San Jose State College	Calif.	Hoefs, John C. B.A. 1966, California Lutheran College	

Huseby, Jon S.	N.J.	Pugsley, George C.	Utah
B.A. 1966, Brown University		B.S. 1966, University of Utah	
Husted, Roger C.	Calif.	Redd, Burton L.	Texas
B.S. 1966, Brigham Young University		Attended Brigham Young University	
Jeppson, Taylor A.	Utah	Rogers, John S., II	Md.
B.A. 1966, University of Utah		B.S. 1966, University of Maryland	
Jetton, Norman B.	Md.	Rytting, Richard M.	Utah
B.A. 1967, George Washington University		B.S. 1966, University of Utah	
Jones, Michael R.	N.J.	Santangelo, Salvatore C.	Conn.
B.A. 1966, Franklin and Marshall College		B.A. 1965, Catholic University of America	Md.
Kanda, Louis T.	Congo	Sappington, Joseph B.	
B.A. 1966, University of California, Los Angeles		B.S. 1965, Georgetown University	N.J.
Katona, John J.	N.Y.	Schnur, Anita K.	
B.S. 1965, Pennsylvania State University		B.A. 1965, Rutgers, the State University	N.J.
Kent, Wilburn L., Jr.	Miss.	Sciallis, Gabriel F.	
B.A. 1966, Johns Hopkins University		B.A. 1966, Rutgers, the State University	Va.
Kovick, Rodney B.	Mont.	Scott, Samuel J., Jr.	
B.S. 1966, University of Washington		B.S. 1966, George Washington University	N.J.
Lamb, Ronald B.	Calif.	Segall, Marc R.	
B.S. 1966, University of Redlands		Attended Franklin and Marshall College	N.J.
Law, Charles E., Jr.	Va.	Singer, Robert J.	
B.S. 1966, George Washington University		B.S. 1966, Pennsylvania State University	N.Y.
Lewis, Paul E., II	Md.	Smith, Charles I.	
B.A. 1966, Johns Hopkins University		B.S. 1966, Syracuse University	W.Va.
Lewis, Richard A.	N.Y.	Snyder, Charles E.	
B.A. 1966, Queens College, N.Y.		B.A. 1966, West Virginia University	Md.
Long, Jon E.	Ariz.	Sommer, Michael S.	
B.S. 1965, University of Arizona		B.A. 1959, A.M. 1964, George Washington University	Pa.
Lyles, John W., Jr.	Md.	Strunk, Harold P.	
B.M.E. 1954, Cornell University		B.A. 1966, Yale University	Hawaii
Lynch, William S.	Ohio	Suetsugu, Ralph T.	
B.S. 1966, University of Notre Dame		B.A. 1966, Johns Hopkins University	Fla.
MacLaughlin, Winthrop S., Jr.	Conn.	Sullivan, Patrick J.	
B.S. in Phar. 1966, Fordham University		Attended Catholic University of America	N.J.
Marshall, Warren C., II	N.J.	Sussman, Michael E.	
B.S. 1966, Pennsylvania State University		B.A. 1966, Franklin and Marshall College	Ohio
Menchey, Milton J.	Calif.	Taylor, Richard L., Jr.	
B.A. 1966, San Diego State College		Attended Northwestern University	Md.
Mewha, Malcolm K.	Pa.	Thomas, Paul J.	
B.A. 1966, University of Pennsylvania		B.S. 1966, University of Maryland	D.C.
Miller, Paul D.	Pa.	Wagshal, Eric M.	
B.A. 1965, Gettysburg College		B.A. 1967, George Washington University	Idaho
M.S. 1966, George Washington University		Ward, Richard L.	
Mitchell, Paul R.	Mass.	B.S. 1966, Brigham Young University	Utah
B.A. 1966, University of Massachusetts		Washburn, Michael D.	
Mooser, Thomas E.	Md.	Attended University of Utah	Conn.
B.A. 1967, George Washington University		Wasilauskas, Victor P., Jr.	
Muth, Warren F.	N.Y.	B.S. 1966, Mount St. Mary's College, Md.	N.J.
B.A. 1964, Gettysburg College		Weinstein, Melvin P.	
Odere, Fred G.	N.Y.	B.A. 1966, Rutgers, the State University	N.Y.
B.S. 1966, Carnegie Institute of Technology		Welch, Joseph D.	
Oram, Alan J.	Pa.	B.A. 1966, Johns Hopkins University	Mont.
B.S. 1966, Mount St. Mary's College, Md.		Whalen, Richard M.	
Osborne, Robert C.	Calif.	B.S. 1966, Montana State University	N.J.
B.A. 1966, University of California, Los Angeles		Wojcik, John D.	
Palmer, Robert C.	N.M.	B.S. 1966, Georgetown University	N.Y.
B.S. 1966, University of New Mexico		Woodard, Craig D.	
Pan, John C.	Hong Kong	B.A. 1966, Johns Hopkins University	Va.
B.S. 1966, University of Notre Dame		Wooten, Michael B.	
Paul, Philip	N.Y.	Attended Washington State University	
B.A. 1964, Brandeis University			

FOURTH YEAR

Anderson, John D.	Texas	Atkins, Mark J.	N.J.
Attended Yale University		Attended University of Rochester	N.Y.
Ashkin, Jeffrey R.	N.Y.	Berger, Michael	
B.A. 1965, Clark University		B.S. 1965, Tufts University	

STUDENTS REGISTERED 141

Berrie, Warren R. B.A. 1964, Stanford University	Calif.	Horsley, Heide B. B.S. 1962, University of California, Berkeley	Calif.
Blades, Frederick C. B.A. 1965, University of Maine	N.J.	Jackson, Allen W. B.S. 1965, George Washington University	Md.
Bland, Susan M. B.S. 1965, George Washington University	Md.	Jacoby, Richard M. B.E.E. 1964, University of Virginia	D.C.
Blum, Matthew D. B.A. 1964, LaSalle College	Pa.	Jenkins, Edward G. B.S. 1963, University of Utah	Utah
Bodley, Don H. B.S. 1965, Montana State University	Mont.	Kahn, Robert W. B.A. 1965, Kenyon College	N.Y.
Boruch, Frank J. B.S. 1965, St. Peter's College, N.J.	N.J.	Koch, Edward B.A. 1964, University of California, Berkeley	Calif.
Boyd, James G., Jr. B.A. 1964, Boston University	Mass.	Kodish, Martin E. Attended University of Akron	Ohio
Briggs, Nancy A. B.A. 1964, Sweet Briar College	Va.	Koff, Irwin H. B.A. 1965, Hofstra University	N.Y.
Brown, Brooks G. B.A. 1965, Washington and Lee University	D.C.	Kriegsfeld, Barry A. B.A. 1965, University of Pennsylvania	Anz.
Brown, Richard B. B.S. 1965, Tufts University	N.Y.	Langstaff, Gary K. B.A. 1962, University of Colorado	Colo.
Cannon, Richard B. B.A. 1965, University of Utah	Utah	Larson, David E. B.A. 1964, Dartmouth College	Minn.
Chorches, Michael A. B.A. 1965, Boston University	Conn.	Levine, Peter H. B.S. 1963, Massachusetts Institute of Technology	Conn.
Cohen, Martin I. B.A. 1965, Adelphi University	N.Y.	Levinson, Lawrence M. B.A. 1965, Cornell University	N.Y.
Corso, Paul J., Jr. B.A. 1966, George Washington University	W.Va.	Lieberman, Robert A. B.S. 1965, City College, New York	N.Y.
Cummings, Kenneth C., Jr. B.S. 1965, George Washington University	Calif.	Lloyd, Frederick A., Jr. B.A. 1965, University of Massachusetts	Mass.
D'Amato, Paul H. B.A. 1965, Rutgers, the State University	Md.	Margolis, Richard S. B.S. 1965, Pennsylvania State University	D.C.
Dove, Richard N. B.A. 1965, Columbia University	Md.	McNamara, Thomas C. B.A. 1965, University of Virginia	Pa.
Duffey, Depue H. B.S. 1965, American University	D.C.	Millman, Robert B.A. 1966, George Washington University	Md.
Eberdt, Arthur J. B.A. 1959, Duke University	Va.	Mitchell, John W., Jr. B.A. 1965, Duke University	Va.
Eudaily, Daniel H. B.S. 1966, Montana State University	Mont.	Murray, Robert W. B.A. 1965, Stanford University	Calif.
Fabrega, Jose M. Attended University of Notre Dame	Panama	Noonan, David V. B.A. 1966, George Washington University	Va.
Foley, Bethanne B.A. 1963, Chestnut Hill College	D.C.	Oliphant, Beverly A. B.S. 1960, Mississippi State University	Miss.
Forman, Kenneth J. B.A. 1964, University of Pennsylvania	Pa.	M.S. 1964, University of Florida	
Franklin, Gary M. B.A. 1961, Franklin and Marshall College	Md.	Orleans, Ronald J. B.A. 1965, Franklin and Marshall College	Md.
Friedman, Leonard M. B.A. 1965, University of Pennsylvania	Ala.	Pace, Robert C. B.A. 1965, University of Utah	Utah
Frist, Stephen Attended New York University	N.Y.	Patterson, Robert H. B.A. 1965, Bridgewater College	Va.
Giovan, Peter N. B.A. 1965, Occidental College	Calif.	Reich, Thomas S. Attended Whitman College	Calif.
Goldhamer, Robert D. B.S. 1965, George Washington University	Calif.	Roberts, Robert M. B.A. 1965, Lafayette College	N.J.
Goldstein, Michael G. Attended University of California, Los Angeles	Calif.	Robins, Douglas N. B.S. 1965, Washington and Lee University	D.C.
Greenberg, Michael R. Attended Pennsylvania State University	Pa.	Rodriguez, Vieraemilio J. B.A. 1965, Boston University	Puerto Rico
Grossman, Jay R. B.A. 1965, Temple University	Pa.	Rubenstein, David M. B.A. 1964, University of Minnesota	Conn.
Grossman, Leonard J. B.A. 1965, Vanderbilt University	N.J.	Sack, Peter G. B.A. 1965, Columbia University	N.J.
Heldman, Patricia F. B.A. 1965, University of California, Berkeley	Calif.	Sanders, Marc R. B.S. 1964, University of Oregon	Oreg.
Hitchcock, Michael H. B.A. 1961, University of Minnesota	Minn.	Sawicki, John E. B.S. 1965, Trinity College, Conn.	Conn.
Holober, Brian C. B.A. 1966, George Washington University	Md.	Scelto, Ronald J. B.S. 1965, Tufts University	N.J.
Horowitz, Michael S. B.A. 1965, Colgate University	N.Y.	Schulman, Robert H. B.A. 1965, Yeshiva University	N.Y.

Schwartz, Frederic T.	N.Y.	Thompson, David A.	Pa.
B.A. 1965, American International College		B.S. 1965, Elizabethtown College	N.Y.
Schwartz, William J.	N.Y.	Tietjen, George W.	
B.A. 1965, Yeshiva University		B.A. 1965, Rutgers, the State University	N.Y.
Sinderson, Thomas G.	D.C.	Tortolani, Anthony J.	Va.
B.A. 1965, Emory University		B.S. 1965, Fordham University	
Speck, Eugene L.	Mass.	Tuegel, Charles R.	N.Y.
B.A. 1958, University of Massachusetts		Attended George Washington University	
Ph.D. 1966, George Washington University		Weiner, Neil J.	N.Y.
Spiegler, Paul S.	D.C.	B.A. 1965, University of Pennsylvania	
B.A. 1960, New York University		West, Edmund A.	N.Y.
Stern, Eric	N.Y.	B.A. 1965, New York University	
B.A. 1965, Brooklyn College		Wolf, Ralph R.	Pa.
Storper, Henry M.	N.Y.	B.A. 1965, Yale University	
B.A. 1965, New York University		Wollack, C. Harold	Ores.
Strauch, Joseph M.	N.Y.	B.A. 1959, Temple University	
B.A. 1965, Yeshiva University		Ph.D. 1963, Princeton University	
Swensen, Swen R.	Utah	Wong, Ira G.	
B.A. 1963, Brigham Young University		B.A. 1963, University of Oregon	
Terry, Luke E., Jr.	W.Va.		
B.S. 1965, College of William and Mary			

Summaries of Registration 1968-69

NUMBER OF REGISTRANTS

Class entering 1968.....	114	Class entering 1966.....	99
Class entering 1967.....	106	Class entering 1965.....	94

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Florida	4	Tennessee	3
Georgia	1	Texas	16
Hawaii	2	Utah	22
Idaho	4	Virginia	14
Illinois	2	Washington	3
Iowa	1	West Virginia	1
Kentucky	1	Wisconsin	1
Maine	2	Puerto Rico	1
Maryland	54	Virgin Islands	1
Massachusetts	13	Canada	1
Michigan	2	Congo	1
Minnesota	2	Guatemala	1
Mississippi	2	Haiti	1
Montana	6	Hong Kong	1
Nebraska	1	Nigeria	1
Nevada	1	Panama	1
New Jersey	50	Thailand	1

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EARNED DEGREES

Adelphi University	1	Hofstra University	2
American International College	1	Howard University	1
American University	1	Hunter College	1
Antioch College	1	Idaho, College of	2
Arizona State University	2	John Carroll University	1
Arizona, University of	2	Johns Hopkins University	10
Boston University	7	Juniata College	1
Bowdoin College	1	Kent State University	1
Brandeis University	1	Kenyon College	1
Bridgewater College	1	Lafayette College	3
Brigham Young University	11	LaSalle College	4
Brooklyn College	3	Maine, University of	3
Brown University	3	Marquette University	1
Bryn Mawr College	1	Maryland, University of	6
C. W. Post College	1	Massachusetts Institute of	
California Lutheran College	1	Technology	2
California, University of, Berkeley	5	Massachusetts, University of	4
California, University of, Davis	1	Michigan State University	3
California, University of, Los		Michigan, University of	1
Angeles	3	Millikin University	1
California, University of, Riverside	1	Minnesota, University of	2
California Western University	1	Mississippi State University	1
Canisius College	1	Missouri, University of	1
Carnegie-Mellon University	1	Montana State University	3
Case Western Reserve University	2	Mount St. Mary's College, Md.	3
Catholic University of America	2	Mount Union College	1
Chestnut Hill College	1	Muhlenberg College	4
Clark University	2	New Mexico, University of	1
Colgate University	2	New York, City College	2
Colorado State University	1	New York, State University of,	
Colorado, University of	1	at Albany	1
Columbia University	5	New York, State University of,	
Concordia College, Moorhead,		at Binghamton	3
Minn.	1	New York University	9
Connecticut, University of	1	Niagara University	1
Cornell University	5	Northwestern University	4
Dalhousie University, Canada	1	Notre Dame, University of	3
Dartmouth College	1	Oberlin College	1
Delaware, University of	1	Occidental College	1
Duke University	8	Ohio State University	1
Eastern Mennonite College	1	Oregon, University of	2
Elizabethtown College	1	Parsons College	1
Emory University	1	Pennsylvania State University	4
Fairfield University	2	Pennsylvania, University of	11
Florida, University of	2	Pittsburgh, University of	3
Fordham University	4	Princeton University	1
Franklin and Marshall College	11	Queens College, N.Y.	1
George Washington University	38	Redlands, University of	2
Georgetown University	4	Richmond, University of	1
Georgia Institute of Technology	1	Rochester, University of	1
Gettysburg College	6	Rutgers, the State University	11
Grinnell College	1	St. John's University, N.Y.	1
Harvard University	2	St. Mary's College, Ind.	1
Hawaii, University of	1		

St. Michael's College	1	Utah, University of	9
St. Peter's College, N.J.	5	Vanderbilt University	1
San Diego State College	1	Virginia Polytechnic Institute	5
San Fernando Valley State College	1	Virginia, University of	2
San Jose State College	1	Wagner College	1
Scranton, University of	1	Washington and Jefferson College	2
Seton Hall University	1	Washington and Lee University	2
Simmons College	2	Washington State University	9
Stanford University	8	Washington, University of	2
Swarthmore College	1	Wesleyan University	1
Sweet Briar College	2	West Virginia University	2
Syracuse University	1	Western Maryland College	1
Temple University	2	Wheaton College, Ill.	1
Texas, University of	1	Whitman College	1
Trinity College, Conn.	5	William and Mary, College of	1
Tufts University	7	Williams College	1
Tulane University of Louisiana	1	Wisconsin, University of	4
U.S. Air Force Academy	1	Yale University	4
U.S. Naval Academy	1	Yeshiva University	
U.S. Naval Postgraduate School	1		
Utah State University of Agriculture and Applied Science ..	1		
Number of College Graduates	378	Number of Colleges Represented ..	142

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COLLEGE OF GENERAL STUDIES, Dean of the College

STUDENT FINANCIAL AID, Office of Student Financial Aid

NATIONAL LAW CENTER, Dean of the Center

SCHOOL OF ENGINEERING AND APPLIED SCIENCE, Dean of the School

UNDERGRADUATE AND GRADUATE CATALOGUE (Arts and Sciences, Education, Government and Business Administration, Public and International Affairs), Office of Admissions

SCHOOL OF MEDICINE, Admissions Office, School of Medicine

SUMMER SESSIONS, Dean of the Summer Sessions

SCHEDULE OF CLASSES: FALL AND SPRING SEMESTERS, Registrar

SCHEDULE OF CLASSES: SUMMER SESSIONS, Dean of the Summer Sessions

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GWU HOSPITAL AND AFFILIATED HOSPITALS



Drawings by John H. Dunston, Class of 1968

COLLEGES AND SCHOOLS—DEGREE PROGRAMS

COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bachelor of Arts (B.A.), Bachelor of General Studies (B.Gen.Std.), Bachelor of Science (B.S.), Bachelor of Science in Environmental Health (B.S. in Env.Health), Bachelor of Science in Geodetic and Cartographic Science (B.S. in Geod. and Cart.Sc.), Bachelor of Science in Medical Technology (B.S. in Med.Tech.), and Bachelor of Science in Oceanography (B.S. in Ocea.)

GRADUATE SCHOOL OF ARTS AND SCIENCES: Master of Arts (M.A.), Master of Fine Arts (M.F.A.), Master of Music (Mus.M.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER: Juris Doctor (J.D.), Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), Master of Comparative Law (American Practice) (M.Comp.L.(Am.Prac.)), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Bachelor of Science (Civil Engineering) (B.S. (C.E.)), Bachelor of Science (Electrical Engineering) (B.S. (E.E.)), Bachelor of Science (Measurement Science) (B.S. (Meas.S.)), Bachelor of Science (Mechanical Engineering) (B.S. (M.E.)), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

SCHOOL OF EDUCATION: Bachelor of Arts in Education (B.A. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching (M.A.T.), Master of Arts in Education (M.A. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION: Bachelor of Business Administration (B.B.A.), Bachelor of Science in General Studies (B.S. in Gen.Std.), Master of Arts in Government (M.A. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Master of Science in Administration (M.S. in Adm.), Master of Science in Business Administration (M.S. in B.A.), Master of Urban and Regional Planning (M. of Urb. and Reg.Plan.), Graduate Certificate in Health Care Administration (Grad.Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS: Bachelor of Arts (B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), Master of Arts (M.A.), and Master of Science in International Affairs (M.S. in I.A.)

THE GEORGE WASHINGTON UNIVERSITY

COLUMBIAN COLLEGE OF ARTS AND SCIENCES. 1821

THE GRADUATE SCHOOL OF ARTS AND SCIENCES. 1893

THE SCHOOL OF MEDICINE. 1893

THE NATIONAL LAW SCHOOL. 1895

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE. 1884

THE SCHOOL OF EDUCATION. 1907

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION. 1928

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS. 1938

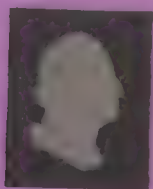
THE COLLEGE OF GENERAL STUDIES. 1960

THE DIVISION OF UNIVERSITY STUDENTS. 1930

THE SUMMER SESSIONS. 1926

THE UNIVERSITY HOSPITAL. 1898

THE GEORGE WASHINGTON UNIVERSITY BULLETIN



NATIONAL
LAW
CENTER



1968-1969

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Office of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D.C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 120. Zip code is essential for mailing catalogues.

Admission

Graduate

Arts and Sciences.....Dean of The Graduate School of Arts and Sciences
Education.....Dean of The School of Education
Engineering and Applied Science.....Dean of The School of Engineering and Applied Science

Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning

Dean of The School of Government and Business Administration
International Affairs and Public Affairs.....Dean of

The School of Public and International Affairs
Law.....Dean of The National Law Center

School of Medicine.....1331 H Street, Washington, D.C. 20005

Undergraduate.....Office of Admissions

Alumni Association.....Alumni Office

Medical Alumni Association.....1331 H Street, Washington, D.C. 20005

Financial Aid.....Student Financial Aid Office

Law Students.....Dean of The National Law Center

Foreign Students.....Adviser to International Students

Gifts and Bequests.....Resources Program

Housing

Men.....Dean of Men

Women.....Dean of Women

Off-campus and Noncredit Courses.....Dean of The College of General Studies

Student Employment.....Student and Alumni Career Services Office

Placement, Law Students.....Dean of The National Law Center

Summer Sessions.....Dean of The Summer Sessions

Transcripts of Records.....Registrar

Veterans Education.....Registrar

THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXVII, Number 10, April, 1968

Published by The University at Washington, D.C. 20006
MONTHLY: SEPTEMBER, DECEMBER, APRIL, AUGUST
(2 ISSUES IN NOVEMBER AND JANUARY; 3 ISSUES IN MARCH)

Second Class Postage Paid at Washington, D.C.

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

**THE NATIONAL LAW CENTER
1968-69**

WASHINGTON, D.C. 20006



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THE CALENDAR FOR 1968-69

1968 SUMMER TERM

- June 3* Registration for all sessions (11 am-7 pm) *Monday*
June 4 First- and 13-week sessions begin *Tuesday*
July 4 Independence Day (holiday) *Thursday*
July 12 First-session classes end *Friday*
** July 15-17* First-session examination period *Monday-Wednesday*
July 18 Registration for students attending 2d session only (11 am-6 pm) *Thursday*
July 19 Second-session classes begin *Friday*
August 28 Last day of classes *Wednesday*
August 29-31 Second-session and 13-week-session examination period *Thursday-Saturday*

1968 FALL SEMESTER

- † September 17-18* Registration: *Tuesday-Wednesday*
Application for February graduation due as part of registration
September 19 Classes begin *Thursday*
October 4 S.J.D. dissertations of February candidates due *Friday*
November 11 Veterans Day (holiday) *Monday*
November 27 Thanksgiving recess begins after last class *Wednesday*
December 2 Classes resume *Monday*
December 21 Christmas recess begins after last class *Saturday*
January 6 Classes resume *Monday*
January 6 LL.M. theses of February candidates due *Monday*
January 15 Last day of fall-semester classes *Wednesday*
January 16-17 Reading period *Thursday-Friday*
January 18-29 Examination period *Saturday-Wednesday*
January 20 Inauguration Day (holiday) *Monday*

1969 SPRING SEMESTER

- † January 30-February 1* Registration: *Thursday-Saturday*
Application for June graduation due as part of registration
February 3 Spring-semester classes begin *Monday*
February 7 S.J.D. dissertations of June candidates due *Friday*
February 21 Holiday *Friday*
February 22 Winter Convocation (holiday) *Saturday*
March 21 Application for 1969-70 teaching fellowships due *Friday*
April 2 Spring recess begins after last class *Wednesday*
April 9 Classes resume *Wednesday*
May 5 LL.M. theses of June candidates due *Monday*
May 17 Last day of spring-semester classes *Saturday*
May 19-20 Reading period *Monday-Tuesday*
May 21-31 Examination period *Wednesday-Saturday*
May 30 Memorial Day (holiday) *Friday*
June 8 Baccalaureate Service *Sunday*
June 8 Commencement *Sunday*

1969 FALL SEMESTER

- September 16-17* Registration: *Tuesday-Wednesday*

* Classes scheduled *Wednesday* evenings for the 13-week session will meet on *Wednesday, July 17*.
† Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.



THE NATIONAL LAW CENTER

HISTORY

THE LAW SCHOOL, the oldest in the District of Columbia, was established in 1865 with a formal program of two years of study. This was largely through the efforts of the Reverend George Whitefield Samson, President of Columbian College, whose action resulted in the purchase of a separate building for holding law classes. This building had belonged to Trinity Church, of which Francis Scott Key had been Senior Warden. It was occupied by the Law School until 1884.

Sixty graduates, from twenty-two of the then thirty-seven states, received degrees in 1867. The School continued to have a student body and a faculty which reflected the fact that it was at the seat of our nation's government. Associate Justices David J. Brewer and John Marshall Harlan of the Supreme Court of the United States were among the prominent members of the bench and bar who served as lecturers.

In 1877, one year after the first such program was adopted in the United States, the Law School instituted a course leading to the degree of Master of Laws. In 1898, the course of instruction for the degree of Bachelor of Laws was extended to three years. The School took part in 1900 in the organization of the Association of American Law Schools. Later, women students were admitted, and in 1916 the first woman to take a regular course in law was graduated.

In the past quarter-century the Law School developed its course and seminar offerings with consideration for the needs of first-degree and graduate students. The degree of Doctor of Juridical Science was instituted in 1940. The needs of foreign lawyers who come to this country and who require additional preparation for law work in the United States resulted in the creation of programs for the degrees of Master of Comparative Law in 1946 and Master of Comparative Law (American Practice) in 1951.

National University, which had had an important place in legal education in the District of Columbia since 1869, was merged in George Washington University in August, 1954.

Programs of special research and study, such as the independent Patent, Trademark, and Copyright Research Institute, give richness to the basic curriculum.

The National Law Center, which was established in 1959, seeks to establish and coordinate programs of teaching, research, and creative development in law which will assist the profession to meet the demands placed upon it by contemporary society. Emphasizing an interdisciplinary approach to modern social, political, scientific, and economic problems having legal implications, the Center also encourages close relations with other appropriate units of the University.

In 1967, the Law Center opened its new five-story library building, adjoining the remodelled classroom and office building, Stockton Hall.

In 1968, the Law Center established the degree of Juris Doctor as its first degree in law.

LOCATION IN THE NATION'S CAPITAL

Of special significance is the location of the National Law Center in the Nation's Capital, the focal point of the law in action, both American and international. The work of the Center goes on in this environment, presenting a unique opportunity for observation and study of federal agencies—judicial, legislative, and administrative. Readily accessible are the Supreme Court of the United States, the federal trial and appellate courts of the District of Columbia, and, in addition, federal courts of special jurisdiction, such as the United States Court of Claims, the United States Court of Customs and Patent Appeals, the Tax Court of the United States, and the Court of Military Appeals. Current federal legislation can be studied as it is considered by Congressional committees and as it comes up for debate on the floors of the House of Representatives and the Senate. With respect to the federal administrative agencies, students here in Washington have matchless opportunities for study and observation. They can attend informal and formal hearings of these agencies and can obtain from the docket sections complete records of administrative adjudication in specific cases. Illustrative of such federal agencies are the Interstate Commerce Commission and the Civil Aeronautics Board in the field of transportation; the Federal Trade Commission in the field of trade regulation; the Securities and Exchange Commission in the field of security issues and corporate finance; the National Labor Relations Board in the field of labor-management relations; the United States Patent Office in the field of patent law; the Federal Power Commission in the field of water, natural gas, and electric power; and the Federal Communications Commission in the field of radio and television.

Supplementing these environmental advantages of law in action are the exceptional research library collections in the Library of Congress, in the various departments of the Federal Government, and in the libraries of the headquarters of national and international organizations. The notable library of the Carnegie Foundation for International Peace has been acquired by George Washington University for use of research students in international and comparative law, fields with respect to which Washington has come to be called "The Capital of the World."

The years of residence at law school are years of participation in the life of the community, which in the case of the George Washington University National Law Center is the government of the United States. As a consequence, the study of law takes on added meaning, whether the goal be government service or practice, general or specialized, and whatever the community in which the student plans to practice.

OBJECTIVES

The primary purpose of the Center is to prepare men and women to meet the needs of society in the many fields of law, public and private. These needs call not only for technical skill but also for responsible leadership in the development of the law and the administration of justice. In fulfilling these responsibilities the Center conducts (1) a program of study in preparation for the practice of law, whether it be general practice, specialized practice, or government service; (2) the publication of a law journal containing the results of research in public law; (3) a series of student professional cocurricular activities; (4) study and research on an advanced level for foreign as well as for American students; and (5) a continuing legal education program for members of the bar.



Juris Doctor Program

THE WIDE GEOGRAPHIC DISTRIBUTION of the students who come to the Nation's Capital to study law makes this a truly national law school. Students from almost every state in the Union here join students from several foreign countries in their legal training. Last year over 320 colleges and universities were represented. The basic curriculum leading to the Juris Doctor degree is addressed to the development and application of legal principles, skills, and ideals which are indispensable to the equipment of a lawyer for professional responsibility and leadership in modern society. It includes, first and foremost, the traditional core of legal education, namely, the study of legal materials—judicial, statutory, and administrative—and instruction in the understanding and technique of their use. It also includes the study of the nature and purpose of law, the history of the Anglo-American legal system, and the history and standards of the legal profession; practice in the skills of legal research and legal writing; elementary training in trial and appellate practice; and, through the medium of seminars, experience in group handling of legal problems.

ENTERING CLASSES

The curriculum is organized so that students may begin the study of law for the Juris Doctor degree only at the start of the fall semester. Transfer students may enter at the start of the spring semester also.

ENTRANCE REQUIREMENTS

Admission to candidacy for the degree of Juris Doctor requires a Bachelor of Arts or equivalent degree from an accredited college or university, a satisfactory quality of work, and an acceptable distribution of courses. Eligibility is based on personal and scholastic records and on the result of the Law School Admission Test. No applicant will be acceptable in transfer who is ineligible to return in good standing to a previously attended law school. From the applicants, a selection is made by the Committee on Admissions.

Information concerning the Law School Admission Test may be obtained from the Dean of the National Law Center or from the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540; or 1947 Center Street, Berkeley, Calif. 94704. The test is administered at various centers in the United States in February, April, July, and November each year. Completed application blanks and fees must be received by the Educational Testing Service at least two weeks before the date of the test. It is not necessary that formal application for admission be made prior to taking the test.

ADVANCED STANDING

Advanced standing toward the degree of Juris Doctor may be granted for work successfully completed in other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association. Transferred credits will not be recognized in excess of those which might be earned in a similar period in the National Law Center.

Advanced standing will not be granted for law work already counted toward the Bachelor of Arts or other pre-legal degree.

TUITION DEPOSIT

Every student admitted to the National Law Center as a candidate for the degree of Juris Doctor must submit a \$100 tuition deposit after receipt of notification of acceptance. This deposit is credited toward tuition and is refundable in full only in cases of applicants called into military service; \$50 will be refunded if notification is received by July 1 that the student does not intend to enter in the fall, \$20 will be refunded if notification is received by September 1.

Students admitted before April 1 must submit the deposit by May 1; those admitted after April 1, within three weeks of notification of acceptance.

REQUIREMENTS FOR THE DEGREE

The student must have completed a residence period of three academic years (four years for evening students) and 84* semester hours of required and elective courses, with a cumulative average of at least 65. At least one academic year of residence and 28 semester hours are required of students admitted with advanced standing. The work of the final semester or summer session must be completed while in residence at the National Law Center. Credits allowed by way of advanced standing are not included in computing the average required for graduation.

Graduation Requirements.—See page 39 for a statement of the graduation requirements.

HONORS

The degree of Juris Doctor "with honors" is awarded students who obtain a minimum cumulative average of 75 but less than 85; the degree of Juris Doctor "with highest honors" is awarded students who obtain a minimum cumulative average of 85.

RESIDENCE

Candidates for the Juris Doctor degree must complete a residence period of three academic years. Attendance in the day division for the fall and spring semesters constitutes residence for an academic year; similar attendance in the evening division constitutes residence for three-fourths of an academic year. Consequently, a day student must attend 6 semesters to meet residence requirements; an evening student must attend 8. Students authorized to take schedules of less than 10 hours in the day division or less than 6 hours in the evening division receive residence credit on a proportional basis. Students who attend the summer sessions receive fractional residence credit.

CURRICULUM

Required and Elective Courses.—A program of required and elective courses has been developed to assure coverage of the basic courses and allow a degree of flexibility to meet the diverse interests of students. At the present time, the

* For students who began the study of law prior to September 1966, the requirement is 80 semester hours.

1969-70 Curriculum

Beginning in the Fall of 1969, the Faculty has determined to adopt an extensive revision of the first-year curriculum, which is thought to be more responsive to the needs of today's law students and to afford them a greater opportunity to adapt their program of studies to their own interests. The new curriculum is shown below:

Day Division**FIRST YEAR****FALL SEMESTER**

Contracts I	4
Torts	4
Criminal Law and Procedure.....	4
Legal Research and Writing.....	2
Total semester hours.....	14

SPRING SEMESTER

Contracts II	2
Property I	4
Constitutional Law	4
Civil Procedure	4
Total semester hours.....	14

SECOND YEAR**FALL SEMESTER**

Elective	14
Total semester hours.....	14

SPRING SEMESTER

Administrative Law	3
Evidence	4
Electives	7
Total semester hours.....	14

THIRD YEAR**FALL SEMESTER**

Elective	12
Legal writing requirement (See page 12).....	2
Total semester hours.....	14

SPRING SEMESTER

Elective	14
Total semester hours.....	14

Evening Division**FIRST YEAR****FALL SEMESTER**

Contracts I	4
Torts	4
Legal Research and Writing.....	2
Total semester hours.....	10

SPRING SEMESTER

Contracts II	2
Criminal Law and Procedure.....	4
Civil Procedure	4
Total semester hours.....	10

SECOND YEAR

FALL SEMESTER

Property I	4
Constitutional Law	4
Elective	2
Total semester hours.....	10

SPRING SEMESTER

Elective	10
Total semester hours.....	10

THIRD YEAR

FALL SEMESTER

Elective	8
Legal writing requirement (See page 12).....	2
Total semester hours.....	10

SPRING SEMESTER

Administrative Law	3
Evidence	4
Elective	3
Total semester hours.....	10

FOURTH YEAR

FALL SEMESTER

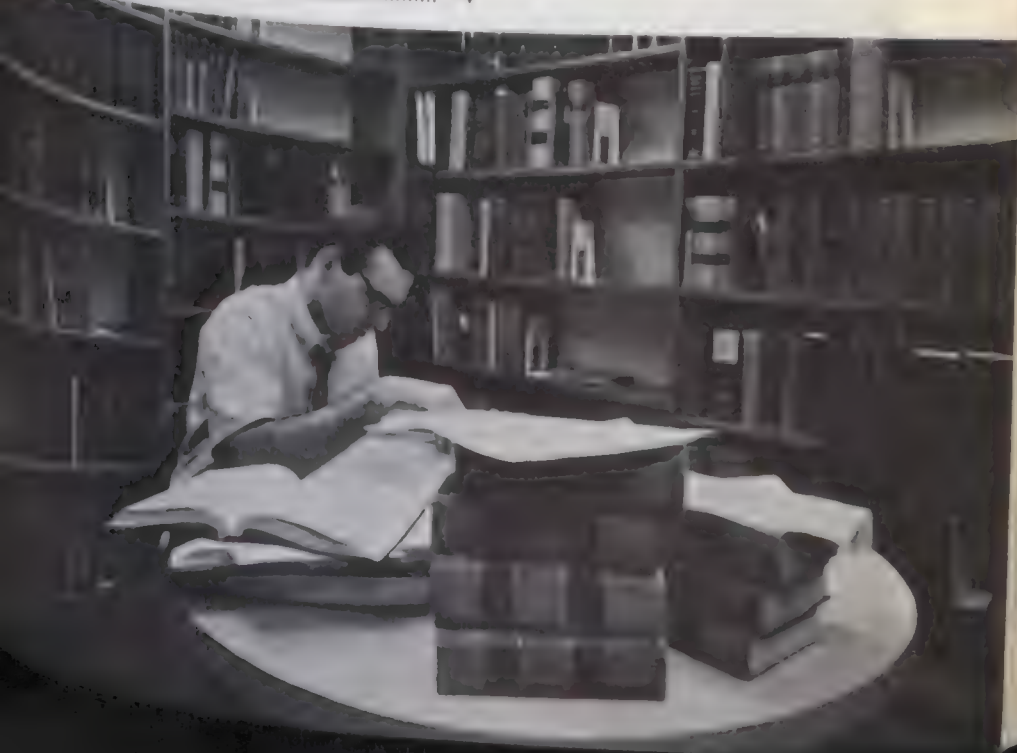
Elective	10
Total semester hours.....	10

SPRING SEMESTER

Elective	10
Total semester hours.....	10

SUMMER TERM OR NINTH SEMESTER

Elective	4
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MASTER OF LAWS

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university* and a Bachelor of Laws, Juris Doctor, or equivalent degree from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. The applicant must demonstrate (by a minimum average or equivalent performance measure, high class standing, *Law Review* experience, positions held, or professional achievements) that he is capable of Master's level work. Advanced standing is not granted for credits earned while a candidate for the first degree in law.

DEGREE REQUIREMENTS

The student must complete a residence period of not less than two semesters, which should be continuous. All requirements for the degree must be completed in this Law Center and in a period not exceeding three years from the time of registration for the degree. The student must complete 24 semester hours of courses as approved by his adviser and the Dean, including Law 599-600. Thesis. A minimum average of 75 is required.

Candidates for the degree in a selected field of specialization must complete a minimum of 12 of the required 24 semester hours in courses of the selected field. Each Master of Laws program of study should include a substantial number of 401-600 series courses.

MASTER'S THESIS

Each candidate for the degree of Master of Laws is expected to write a Master's thesis (Law 599-600) under the supervision of a member of the faculty of the National Law Center. Four hours of credit will be granted for successful completion of the thesis. The purpose of this requirement is to demonstrate the ability of the student to perform research in a special area of the law and to produce a scholarly paper containing the results of this research. The thesis is expected to be of substantially the same quality as a *Law Review* article. The requirement for a Master's thesis may be waived in appropriate circumstances.

The thesis in its final form must be presented to the Dean no later than the date specified in the Calendar. Two complete copies are required. It is the responsibility of the candidate to obtain from the Office of the Dean a printed copy of the regulations governing the styling and reproduction of theses.

Accepted theses become the property of the University and are deposited in the Law Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material must be secured from the Dean.

GRADUATE COURSES IN OTHER DEPARTMENTS

The Master of Laws candidate is encouraged to take graduate courses related to his field of interest in other departments of the University. A maximum of 6 semester hours will be credited toward the degree for such courses. Courses

*The Dean is authorized to make exceptions in appropriate cases.

numbered 101-200 may be taken for graduate credit if the student does additional work, as prescribed by the department.

CONSORTIUM OF UNIVERSITIES OF THE WASHINGTON METROPOLITAN AREA, INC.

A candidate for the Master of Laws degree may take graduate courses at Georgetown University through the Consortium of Universities of the Washington Metropolitan Area, Inc. A maximum of 6 semester hours of such courses will be credited toward the degree. Permission to take Consortium courses must be granted by the Dean and the Registrar.

DOCTOR OF JURIDICAL SCIENCE

ENTRANCE REQUIREMENTS

A Bachelor of Arts or equivalent degree from an approved college or university*; a Bachelor of Laws, Juris Doctor, or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association; outstanding capacity for scholarly work in the field of law; and faculty approval of the applicant's dissertation topic. The applicant must submit an outline of his proposed topic in some detail, indicating by chapter and division within chapter the exact scope of the project. There should be a bibliography for each chapter listing books, reports, cases, and *Law Review* articles to be considered. Although the outline cannot predict every detail of the subsequent research, it must be sufficiently definite to afford the faculty a basis for evaluation.

DEGREE REQUIREMENTS

The candidate must complete (1) a residence period of not less than one academic year; (2) a course of study and research—designated by his consultative committee and approved by the faculty—of no less than 8 semester hours including *Jurisprudence*, unless previously taken, and two seminars in which research papers are required; and (3) an acceptable dissertation. The dissertation must be submitted no later than three years from the date of approval of the dissertation subject. The applicant who proposes to write on a comparative law topic must have a reading knowledge of the language in which the relevant materials are to be found. At the conclusion of his first year of residence, or at such other time as the faculty may set, the candidate must pass an oral examination in those fields of study selected by the consultative committee. This examination is conducted by the consultative committee and such other members of the faculty and qualified experts as are selected by the faculty.

No later than the date specified in the Calendar, the candidate must submit to the Dean three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the *Abstracts of Doctoral Dissertations* issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication, *Dissertation Abstracts*, which is distributed nationally.

*The Dean is authorized to make exceptions in appropriate cases

Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. To be acceptable the dissertation must, in the opinion of the examining committee, constitute a substantial contribution to the field of law concerned and be suitable for publication. Additional information will be supplied by the Dean. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the Law Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

Degree Programs for Foreign Students

THE NATIONAL LAW CENTER has several programs of study available to students trained in law outside the United States. These programs fall into two general categories: (1) those directed toward preparing the student for a bar examination in an American jurisdiction and (2) those that enable the student to return to his country with a more thorough understanding of some aspect of American law.

A student with a degree from a foreign law school is normally admitted to the Center as a Provisional Student, so that the faculty can evaluate his work before admitting him to degree candidacy. Appropriate credit will be granted for work taken as a Provisional Student.

In order to qualify for admission to the bar of an American jurisdiction, the student may apply for either the Juris Doctor (J.D.) or the Master of Comparative Law (American Practice) (M.Comp.L. (Am.Prac.)) degrees. The J.D. degree requires 84 semester hours of work in law school (credit is given for work in a foreign law school only in exceptional circumstances) and will qualify the student to take most U.S. bar examinations. The M.Comp.L. (Am.Prac.) degree requires 28 semester hours of work and satisfies the requirements of the District of Columbia Bar. *The student is cautioned to ascertain the requirements of the bar for which he intends to qualify prior to selection of his law school program.*

A student planning to return to his country may undertake a program leading to the degree of Master of Comparative Law (M.Comp.L.); or, if he has outstanding qualifications, he may undertake advanced work leading to the Master of Laws (LL.M.) or Doctor of Juridical Science (S.J.D.) degree. The M.Comp.L. degree programs enable the student to gain a broader comprehension of the American legal system by taking basic courses in the Law Center. The LL.M. and S.J.D. programs allow the student to work in advanced or specialized legal fields.

ADMISSION PROCEDURE

For general Admission information concerning all National Law Center students see page 27.

Application, required records, and scores on the *Test of English as a Foreign Language* (see details below) must be received from foreign applicants no later than March 1 for the fall semester and November 1 for the spring semester.

REQUIRED RECORDS

Applicants must request all educational institutions attended to send directly to the Dean official credentials listing subjects studied, grades received, examinations taken, and degrees received. Certified copies of diplomas and certificates from secondary schools and all colleges and universities attended are required. Records of state examinations and certificates are also needed. All records become the property of the University and *cannot* be returned.

LANGUAGE TEST

Students whose native tongue is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The completed application form should be returned to the Testing Service at Princeton well in advance of the beginning of the semester for which the applicant seeks admission. A \$10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does not constitute application for admission to George Washington University.

The Bulletin of Information, obtainable without charge, contains a description of the test as well as rules regarding application, fees, reports, and the conduct of the test: lists of examination centers; examination dates; and an application blank. On the application for the test, the student should specify that the scores be sent to the Dean's Office.

ENTRANCE REQUIREMENTS

For the Degree of Juris Doctor.—Entrance requirements for foreign students are the same as those stated on pages 10–11, except that advanced standing is rarely granted for study in foreign law schools.

For the Degrees of Master of Comparative Law and Master of Comparative Law (American Practice).—The successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or liceo; and graduation in law from a recognized foreign university.

For the Degree of Master of Laws.—Successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or liceo; and graduation in law from a recognized foreign university. The applicant must demonstrate (by good academic record or equivalent performance measure, high class standing, positions held, or professional achievements) that he is capable of Master's level work and must demonstrate a sufficient background in the Common Law to undertake the Master's program.

For the Degree of Doctor of Juridical Science.—Successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to

graduation from a gymnasium, lycee, or liceo; graduation in law from a recognized foreign university; outstanding capacity for scholarly work in the field of law; and faculty approval of the applicant's dissertation topic. The applicant must submit an outline of his proposed topic in some detail, indicating by chapter and division within chapter the exact scope of the project. There should be a bibliography for each chapter listing books, reports, cases, and articles to be considered. Although the outline cannot predict every detail of the subsequent research, it must be sufficiently definite to afford the faculty a basis for evaluation.



DEGREE REQUIREMENTS

Juris Doctor, Master of Laws, and Doctor of Juridical Science.—Degree requirements for foreign students are the same as those stated on pages 11–15, 18, and 19–20.

Master of Comparative Law.—The student must complete a residence period of not less than two semesters, which should be continuous. All requirements for the degree must be completed in a period not exceeding three years from the time of registration for the degree. The student must complete satisfactorily 24 semester hours of approved courses of the Center, or of such other departments of the University as the faculty of the Center shall approve.

Master of Comparative Law (American Practice).—The requirements for this degree are the same as those for the degree of Master of Comparative Law except that the degree of Master of Comparative Law (American Practice) requires 28 semester hours of course work with a cumulative average of at least 65.

Unclassified Students

THE FOLLOWING TYPES OF STUDENTS may be admitted to the National Law Center as Unclassified Students:

1. A candidate for a Bachelor of Laws or Juris Doctor degree with an above-average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association, may at the discretion of the Dean, be admitted as an Unclassified Student to earn credits for transfer to the other law school.

2. Graduates of law schools which are members of the Association of American Law Schools or are approved by the American Bar Association who wish to take advanced courses without pursuing degree programs. Applicants with inferior records will not be admitted.

Unclassified Students participate in the work of the course, take examinations, and have their grades recorded. Credit earned as an Unclassified Student cannot be credited toward a degree at this institution.*

Continuing Legal Education

MEMBERS OF THE BAR wishing to keep abreast of current developments in the law may register for any of the courses in the National Law Center on a non-credit basis as Continuing Legal Education Students. Such students do not take examinations in courses and no grades are recorded for their work.

A simplified admission and registration procedure is used and must be completed on or before the last day of regular registration for the appropriate semester. Continuing Legal Education Students pay only the tuition fee on the semester-hour basis. They may not participate in student activities or benefit from the medical privileges of the University.

* The Dean is authorized to make exceptions in appropriate cases for Master's and doctoral students.



GENERAL INFORMATION

DAY AND EVENING CLASSES

DAY CLASSES meet in the mornings in fifty-minute periods and in the afternoons in fifty-minute periods and also in sessions of two fifty-minute periods, Monday through Friday. Trial Practice Court meets for two-hour periods on Saturday mornings.

Evening classes meet from 5:50 to 7:40 p.m., Monday through Friday. A four-credit course, e.g., Evidence, meets two evenings a week; a three-credit course, e.g., Administrative Law, meets two evenings a week for one-half the semester and one evening for the other half; a two-credit course, e.g., Personal Property, meets one evening a week. The evening division conforms to the standards of the day division, the full-time faculty participating in the instruction.

Examinations for both day and evening classes may be given in the afternoon only.

SUMMER TERM

A term of two sessions, with day and evening classes, is offered in the summer. Continuing students and transfer students may register for either or both sessions. *No beginning students are admitted to the Juris Doctor program in the summer term.*

The summer term is shorter than a semester of the academic year, and, as a consequence, a student must attend two and one-half summer terms to receive residence credit for one academic year or attend one and one-half summer terms to receive residence credit for a semester.

A maximum of 6 semester hours may be taken each session by day students. Day students receive four-tenths of a semester of residence credit for each session of the summer term in which they are registered for 3 or more semester hours. A maximum of 4 semester hours may be taken each session by evening students. Evening students receive three-tenths of a semester of residence credit for each session of the summer term in which they are registered for 2 or more semester hours.

Summer students planning to take the New York bar examination must register at the beginning of the term for both sessions and must complete both and carry a program of at least ten classroom periods a week for day students and at least eight classroom periods a week for evening students.

THE LAW LIBRARY

The Law Library of almost 90,000 volumes, housed in a new building adjacent to the main Law Center building, contains the official reports of the decisions of the courts of last resort of all states prior to the National Reporter System, and of some states complete to date; the reports of lower appellate courts for some states; the National Reporter System, complete; the reports of the United States Supreme Court and lower Federal courts, and the reports of federal administrative agencies; Shepard's Citations for the units of the Reporter System and for nearby states; the English Reports, Full Reprint; the English Law Reports; the Times Law Reports; the Dominion Law Reports; the United States statutes at large and codes (official and unofficial); complete sets of annotated statutes of all the states; the English statutes; the Canadian statutes; the principal English and American digests and encyclopedias; collections of special reports and annotated cases; United Nations documents and printed publications in English, including the complete United Nations and League of Nations Treaty series; and standard textbooks, treatises, and monographs. Approximately 600 legal and related periodicals and journals are currently received. The Law Library incorporates the collection received from National University Law School in 1954 at the time of the merger of the two schools.

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon payment of fees, must be presented as identification.

Also available to law students are 50,000 bound volumes and 20,000 pamphlets of the former library of the Carnegie Endowment for International Peace, in the fields of international law and relations, history, and economics, in the University Library.



Admission

APPLICANTS ARE URGED to submit application forms and complete credentials well in advance of the semester for which they seek admission. Two recent signed photographs and an application fee of \$25 for a degree candidate, \$5 for an Unclassified Student, must accompany the application.

Forms for application for admission or readmission are available at and should be returned to the Office of the Dean of the National Law Center, 720 Twentieth Street, N.W., Washington, D. C. 20006.

For further details concerning students from foreign institutions, see pages 20-22.

APPLICATION FOR ADMISSION

Juris Doctor Program.—Beginning students are admitted only at the start of the fall semester.

To provide time for the evaluation of credentials of beginning students, all papers, including the Law School Admission Test score, should be received by May 1. This means that the November, February, or April Law School Admission Test should be taken. (See "Entrance Requirements," pages 10-11.)

All papers of transfer students should be received by the Office of the Dean no later than May 1 for the fall semester, December 1 for the spring semester, and one month prior to registration for the summer session for which application is made.

Master's and Doctoral Programs.—Students are admitted at the beginning of the fall semester, the spring semester, or any of the summer sessions.

Application for admission, together with all required credentials, must be received by August 1 for the fall semester, December 15 for the spring semester, and one month prior to registration for the summer session for which application is made.

Unclassified Students.—Students are admitted at the beginning of the fall semester, the spring semester, or any of the summer sessions.

1. Application for admission, with required credentials, for a student who wishes to earn credits for transfer toward a Bachelor of Laws or Juris Doctor degree at another law school (see page 23), should be received at the Office of the Dean at least one month prior to the first day of registration for the semester or summer session for which application is made.

2. Application for admission, with required credentials, for lawyers who wish to take graduate courses (see page 23), should be received at the Office of the Dean by August 1 for the fall semester, December 15 for the spring semester, and one month prior to registration for the summer session for which application is made.

Continuing Legal Education Students.—Students file a simplified form at any time prior to the first day of classes of the term concerned. No application fee is required, and no credentials are necessary.

READMISSION

A student who was previously registered but did not attend during the most recent semester (summer term excluded) should file an application for readmission.

sion. Closing dates for readmission are the same as those for admission (see page 27).

If the student has attended one or more higher institutions during his absence from the University or if he applies as a degree candidate and was previously a nondegree student, he must have complete, official transcripts sent to the Dean.

Registration

BEFORE ATTENDING CLASSES each student must present himself in person for registration. No student will be registered until proper credentials have been filed and approved (see "Admission").

No registration is accepted for less than a semester or one summer session. A student may not register concurrently in George Washington University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, *prior to registration*. Allowance of credit for work done concurrently at another institution will be at the discretion of the Dean.

ELIGIBILITY FOR REGISTRATION

No student who is suspended or whose record is not clear for any reason is eligible to register.

New Student.—Upon receipt of a letter of admission a new student is eligible for registration on the stated days of registration.

Readmitted Student.—A student previously registered who was not registered for courses during the preceding semester or summer session must apply for and receive a letter of readmission (see "Readmission," pages 27–28) before he is eligible for registration. A student registered for the spring semester of 1968 need not apply for readmission for the fall semester 1968–69. Such a student is a "Continuing Student."

Continuing Student.—A student registered for courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for 1968 summer session courses, and not restricted to summer registration, is eligible for registration for the 1968–69 fall semester upon presentation of his 1968 summer session student identification card.

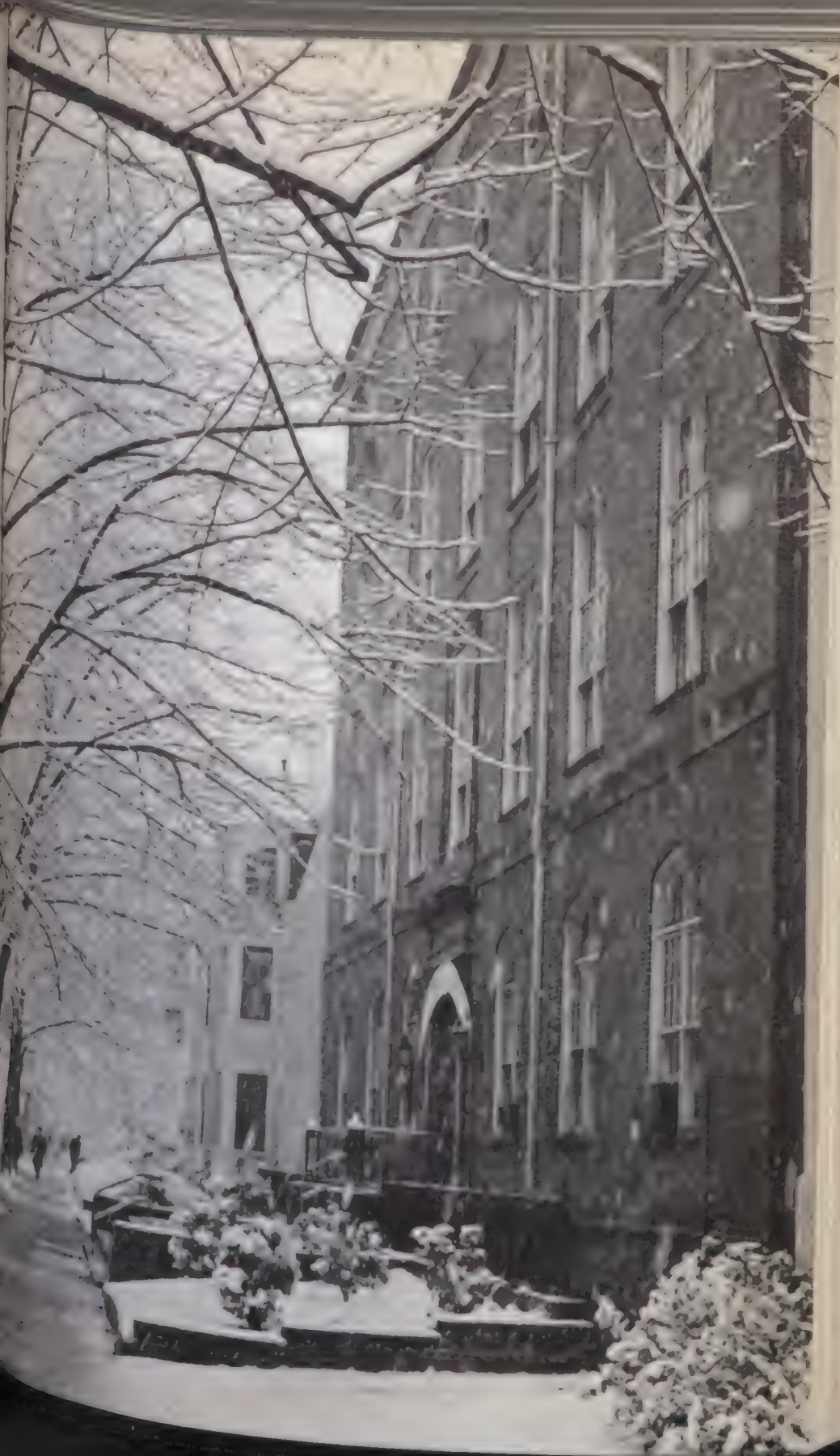
TIME AND PLACE OF REGISTRATION*

Registration is held in Stockton Hall, 720 Twentieth Street, N.W., during the following periods: *fall semester*, September 17 and 18; *spring semester*, January 30–February 1.

A late-registration fee of \$15 is charged each student who is permitted to register after the regular registration days.

Registration may be changed only with the permission of the Dean.

* Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.



Fees and Financial Regulations

THE FOLLOWING FEES AND FINANCIAL REGULATIONS were adopted for the academic year 1968-69. (See page 31 for projected tuition increases for 1969-72.)

Tuition Fees

All law students except candidates for the degree of Doctor of Juridical Science:	\$800.00
Full-time program (11 hours or more), each semester.....	60.00
Part-time program, each semester hour.....	1,700.00
Doctor of Juridical Science,* including the final examination.....	

Graduation Fees

Juris Doctor, Master's, Doctor's degrees.....	25.00
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Fee for binding Master's Thesis.....	10.00
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Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation.....	55.00
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Residence Hall Fees (see page 41)

Special Fees

Application fee (degree candidate), nonrefundable.....	25.00
Application fee (unclassified student), nonrefundable.....	5.00
Application fee for room reservation.....	100.00
Tuition deposit fee charged each student admitted to J.D. degree candidacy.....	100.00
Special fee (Student Bar Association activities, Law Review, and other services), charged each student (except students registered for "continuous registration") for each semester or any part thereof except the summer term.....	10.00
Fee for special examinations, for each subject.....	5.00
Late-registration fee, for failure to register within the designated period.....	15.00
Change fee, for each change in program involving one course or more than one course.....	2.00
Continuous Registration fee, to maintain "continuous registration" during any semester of absence from the University or after completion of tuition requirements.† Due and payable on the official days of registration.....	60.00
Service fee for deferred payment plan (See "Payment of Fees," page 31).....	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
Transcript fee, for each transcript of record.....	1.00
Registration in the University entitles each student to the following University privileges: the services of the Student Career Services Office; the use of University Library; gymnasium privileges; admission to all athletic contests, unless.....	

* The tuition fee is to be paid at the rate of \$425.00 a semester for four successive semesters exclusive of the summer term or terms. No "continuous registration" fee will be charged if a third year is needed for completion of the degree requirements. If the Faculty should approve an extension of time, the student must maintain continuous registration and pay the continuous registration fee.

† Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither financial nor residence requirements for the degree.

This fee does not apply to students granted military leave, see page 39

otherwise specified; subscription to the *University Hatchet*, the student newspaper; admission to University debates; medical attention and hospital services as described under "Health Services" (see pages 41-42). These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PROJECTED TUITION INCREASES 1969-72

In order that students and their parents may plan more realistically, tuition increases for the academic years 1969-70, 1970-71, and 1971-72 have been estimated as follows:

*Increase by year (full-time students):	
1969-70	\$100.00
1970-71	100.00
1971-72	100.00
Increase by semester hour (part-time students):	
1969-70	4.00
1970-71	4.00
1971-72	4.00

It is not possible to project future economic data with certainty. Barring a severe change in the national economy, however, the above listed tuition schedule will be followed.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier. Checks and postal money orders should be made out to George Washington University. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

The Student Accounts Office has responsibility for creating, billing, and maintaining student accounts resulting from tuition and room and board charges. A student registered for six semester hours or more may sign a contract with this Office at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 6, 1968 (for the fall semester) and March 19, 1969 (for the spring semester). A service fee of \$5 will be charged for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance, of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 reinstatement fee and have been officially reinstated by the Student Accounts Office.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Student Accounts Office.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

* These yearly increases are also projected for the total fee for work leading to the degree of Doctor of Juridical Science.

The National Law Center has been able in recent years to assist substantially all students in obtaining the financial aid they required, through full or partial scholarships, various loan programs, part-time employment, or a combination of these kinds of assistance. There are a number of sources for financial assistance available to students at the Law Center. These include the various state guaranteed education loans, loans under the National Defense Education Act, under the American Bar Association loan program, and under the United Student Aid loan program.

In addition, there are various plans available, through the Girard Trust Exchange Bank, Philadelphia, Pa.; Funds for Education, Inc., Manchester, N. H.; and the Riggs National Bank, Washington, D.C.; by which students may, if they meet various conditions, borrow money on a relatively short-term basis.

Full details concerning these funds are available in the Office of the Dean.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean. Withdrawal from courses is permitted after the midpoint of a semester only in extraordinary circumstances. Notification to an instructor is not an acceptable notice.

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

FALL SEMESTER

Withdrawal dated on or before September 27, 1968.....	90 per cent
Withdrawal dated September 30 to October 11, 1968.....	75 per cent
Withdrawal dated October 14 to October 25, 1968.....	50 per cent
Withdrawal dated after October 25, 1968.....	none

SPRING SEMESTER

Withdrawal dated on or before February 7, 1969.....	90 per cent
Withdrawal dated February 10 to February 21, 1969.....	75 per cent
Withdrawal dated February 24 to March 7, 1969.....	50 per cent
Withdrawal dated after March 7, 1969.....	none

2. For a change in status from full-time to part-time student or for partial withdrawal by a part-time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.
3. A student enrolled in a full-time program who drops or adds a course and continues to be in a full-time program will have no financial adjustments of tuition made other than those involving course fees.
4. A student who is granted military leave before completing a semester is given credit for all tuition paid for that semester for use upon his return to the University. No tuition will be refunded to a student granted military leave (see Military Leave, page 39).

In no case will tuition be refunded or reduced because of absence from classes. Payment applies only to the semester for which a registration charge is incurred, and in no case will this be credited to another semester.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Financial Aid

JURIS DOCTOR PROGRAM

SCHOLARSHIPS AND RESEARCH ASSISTANTSHIPS

APPLICATION AND CORRESPONDENCE concerning scholarships and research assistantships should be sent directly to the Dean. Unless otherwise specified, application and supporting credentials should be submitted no later than March 1 preceding the period for which the award is made.

Charles Worthington Dorsey Memorial Scholarship (1947).—Memorial to Charles Worthington Dorsey, LL.B. 1881, LL.M. 1882. A full-tuition scholarship for the course leading to the degree of Juris Doctor, awarded to a needy and promising graduate of this University with a Bachelor of Arts or equivalent degree. Ordinarily this scholarship is awarded once every three years.

Honor Scholarships.—Two scholarships available each year to students entering upon full-time study. Each scholarship provides a cash award for the first year in addition to tuition aid, in an amount depending on need, for all three years. These scholarships are awarded on the basis of outstanding college records, both academic and extracurricular; Law School Admission Test scores; and need. To retain the scholarship for the second and third years, the candidates must maintain a *B* average, both for each year and cumulative.

Phi Delta Delta Scholarships (1959).—Zeta Chapter of Phi Delta Delta Legal Fraternity (International), provides tuition aid to a woman student in the second year of the Juris Doctor program who excelled in scholastic achievement and service to the Center in her first year.

Research Assistantships.—Available each year to students currently enrolled, preferably to applicants who are engaged in *Law Review* work. Each assistant receives an annual stipend. Awards are made on the basis of academic standing, financial need, capacity for leadership, and research and writing potential. Applications should be submitted no later than July 1.

Research Scholarships.—Available each year to students currently enrolled, preferably to applicants who are completing the second year. Scholarship awards are made on the basis of academic standing, financial need, capacity for leadership, and research and writing potential. Applications should be submitted no later than July 1.

Trustee Scholarships.—Scholarships awarded each year to entering students, for tuition aid, in an amount depending on need, in the morning division. Candidates must have demonstrated qualities of leadership in addition to scholastic attainment. To retain the scholarship, the successful candidate must maintain a *B* average, both for each year and cumulative. Application must be made before March 1 to the Dean.

Tuition aid scholarships are also available to continuing second- and third-year full-time students with demonstrated scholastic ability, on the basis of financial need and capacity for leadership. Application should be made to the Dean prior to July 1. Scholarships are awarded after spring-semester grades are reported.

LOAN FUNDS

Through the generosity of friends of the University a number of loan funds are available. Among them are the Robert Ash Loan Fund; the George R. Beneman Loan Fund; the Robert M. and Mary McConnel Cooper Loan Fund; the District of Columbia Bar Association Loan Fund; the Harold L. and Violet George Foundation Loan Fund; the George Washington Law Association Loan Fund; the Jephson Educational Trust Loan Fund; the Law Association Loan Fund for the law classes of 1912, 1921, 1924, 1929, 1931, 1933, 1935, 1936, 1937, 1938, 1939, 1941, 1942, 1945, 1950, 1951, 1952, 1953, 1955, 1959, 1960, 1961, 1962, 1963, 1964, 1965; the Oscar Lawler Memorial Loan Fund; the Horace L. Lohnes Memorial Assistance Fund; the Jessie B. Martin Loan Fund; the Mike Pelekiri Loan Fund; and the Orville Hassler Walburn Memorial Loan Fund. Applications for loans should be made in the Office of the Dean.

MASTER'S AND DOCTORAL PROGRAMS

FELLOWSHIPS AND RESEARCH OPPORTUNITIES

Application should be made before March 15 preceding the period for which the award is made. The applicant should submit an application for admission as a degree candidate and a personal letter applying for a fellowship to the Dean. The letter of application should contain complete biographical data, information as to experience in practice or teaching and his draft or military status, copies of or citations to his published legal writings, and such other information as he believes will be of assistance in the consideration of his application. He should arrange for letters of recommendation to be sent from two members of his law faculty directly to the Dean. His academic rank in class should be included either in the transcript of his law school record or in the letters of recommendation.

Thomas Alva Edison Fellowship.—A \$5,000 fellowship for advanced study of the patent and related systems is made available annually to the Patent, Trademark, and Copyright Research Institute of the University by the Thomas Alva Edison Foundation for award to a qualified advanced student in one of the schools of the University. The recipient of the fellowship is expected to follow an approved program of research under the supervision of a member of the Staff of the Patent, Trademark, and Copyright Research Institute assigned as counselor to the fellow. He must satisfactorily complete the degree requirements, including a thesis on a subject in a field of the Institute's interest. This fellowship can be made available to the same candidate for two consecutive years when the Research Institute considers such extension to be in the best interests of the fellowship objectives.

Fellowship in Government Procurement Law.—A fellowship of \$5,000 plus tuition and student fees, for a program leading to the degree of Master of Laws with specialization in Government Procurement Law. The Fellow takes 10 semester hours of approved courses over two semesters. The balance of his time is spent in research, writing, and editorial work under the guidance of the staff of the University's Government Contracts Program. The candidate is chosen on the basis of ability to do superior legal work, demonstrated by law school record or work experience, and genuine interest in government procurement law.

Richard Paul Momsen Fellowship for Brazilian Graduate Law Students.—Bequest of Richard Paul Momsen, LL.B. 1912. Awarded 1968–69 and alternate years, for the study of U.S. constitutional law.

Teaching Fellowships.—Available each year to prospective candidates for the Master of Laws degree. Each fellow receives an annual stipend of \$5,000, plus tuition for the academic year. Teaching fellows follow an approved program of study and research, assist members of the Faculty in the guidance of first-year students, and supervise student work in legal bibliography and the drafting of legal instruments. Upon satisfactory completion of the year's work, a fellow is recommended for the degree of Master of Laws.

Research Study Opportunities.—In addition to the above fellowships, research assistantships with opportunity for graduate study are available with the program of Law, Science, and Technology; and the Government Contracts Program.

Prizes

American Security and Trust Company Award.—A cash award to a graduating senior for the most effective work in the course in estate planning.

Charles Glover Prize.—Established by Charles Carroll Glover, Jr., an Honorary Trustee of the University, in memory of his great-grandfather, an illustrious member of the bar of the District of Columbia. Consists of selected law books. Awarded annually to the student who has attained the highest average grade in the third-year, full-time course.

Kappa Beta Pi Prize.—A copy of Blackstone's *Commentaries* or a legal dictionary awarded annually by Eta Alumnae Chapter to the woman law student who attains the highest average for the freshman year.

John Bell Larner Prize.—By bequest, a medal is awarded annually to the member of the graduating class who attains the highest average grade in the entire course for the degree of Juris Doctor.

John Ordronaux Prizes.—By bequest, \$75 is awarded annually to the student who has attained the highest average grade in the first-year, full-time course; and \$75 to the student who has attained the highest cumulative average grade at the end of the second-year, full-time course.

Jennie Hassler Walburn Prize.—A cash award to the outstanding student in the field of civil procedure, established by the will of the late Professor Orville Hassler Walburn in memory of his mother.

Regulations

ACADEMIC WORK LOAD

Juris Doctor Candidates.—Juris Doctor candidates without substantial outside employment may take a program of studies of 14 hours a week. Such students may take courses in the evening only if they are not available in the day time.

and if a majority of the hours taken are in day courses. The Dean is authorized to approve 15-hour programs in exceptional cases. Students with 20 hours or more of outside employment, whether in the day or evening division, must take a limited program of studies not exceeding 10 hours a week. Students taking a majority of their classes in the evening may not take more than 10 hours a week; the minimum load is 8 hours, except in special cases where 6 may be approved by the Dean for a limited time. A minimum schedule of 11 hours in the day division is required except in exceptional circumstances when a reduced program for continuing students is authorized by the Dean.

Students may transfer from the day division to the evening division only with the permission of the Dean.

With the approval of the Dean, second- and third-year students may take a maximum of 6 semester hours of appropriate courses in other departments of the University; such a student must receive a grade of at least *B* to obtain credit for such courses, and in no event will the grade count in computing his cumulative average.

Students taking more than 8 hours in the day division or 4 hours in the evening division must have the permission of the Dean to take a Bar Review course.

Master's Candidates.—Master's candidates without substantial outside employment may take a maximum of 12 hours a week. Students with 20 hours or more of outside employment must take a limited program of study not to exceed 8 hours a week. The minimum load is 4 hours unless approval for fewer hours is given by the Dean for a limited time.

ATTENDANCE

Regular attendance at classes is required and is necessary for successful work. A student who is deficient in class attendance in any course may be barred from taking the examination.

CHANGES IN PROGRAM OF STUDIES

A student may not drop or add courses or change from one section to another of the same course without the approval of the Dean.

RESEARCH PAPER IN LIEU OF EXAMINATION

The preparation of a research paper is required in lieu of an examination in seminars and in other courses, as indicated in the course descriptions by (RP). The research paper must be submitted by the last day of classes of the semester; for sufficient reason, the instructor may extend this time to the end of the examination period. No further extension may be granted. In general, a qualified J.D. candidate may register for one such course; in special cases he may register, with the approval of the Dean, for two.

EXAMINATIONS

Written examinations are held at the end of most courses. Every student is required to take the regular examinations unless excused. No excuse for absence will be granted except by the Dean and then only for illness or other emergency. Application for excuse must be made in writing not later than one

month after the date of the examination. An entry of *I*, incomplete, will be made on the record of a student thus excused. To receive credit for the course, he must take the next regularly scheduled examination. The examination may not be taken after exclusion for low scholarship.

Permission to take an examination before the regularly scheduled date will not be granted. Permission to take a postponed examination is limited to the situation provided for in the preceding paragraph.

A student who has been excused from taking a regular examination and who is a candidate for a degree to be conferred prior to the next regular examination in the subject may petition the scholarship committee, which may authorize such action as the circumstances require.

If a student fails to take an examination, a grade of 45 will be recorded unless he has been excused from the examination as provided above or has obtained the Dean's permission to drop the course.

GRADES

Grades are given in numerical terms equivalent to letter grades as follows: 85-100, *A*, excellent; 75-84, *B*, good; 65-74, *C*, satisfactory; 55-64, *D*, poor—below standard for graduation; 45-54, *F*, failure. In courses 321-22, 365, 366, 385, and 386 grades are *CR*, credit; *NC*, no credit. A student who has been excused from failure to take a regularly scheduled examination is given the grade of *I*, incomplete, and a student who has been barred from taking an examination because of excessive absences is given the grade of *EA*. See "Examinations" above, for grade upon failure to take an examination. Grades between 55 and 100 indicate that the work has been completed and credit given for the courses. Grades between 55 and 64, however, do not represent satisfactory work and adversely affect a student's cumulative average. No credit is given for grades below 55. A student may not repeat a course he has failed.

The cumulative average of a student includes all grades in all courses taken while he is a candidate for a particular degree. When a course is repeated (see "Academic Dishonesty," page 39), both the first grade and the subsequent grade or grades are counted in the cumulative average.

EXCLUSION AND PROBATION FOR POOR SCHOLARSHIP

Candidates for the Degree of Juris Doctor.—A student whose cumulative average at the end of any semester falls below 65.0 but above 64.0 will be notified that he is on probation. If such a student fails to raise his cumulative average to 65.0 at the end of the next semester, he will not be permitted to register for any succeeding semester unless he petitions for and receives the permission of the Scholarship Committee.

A student whose cumulative average at the end of any semester falls below 64.0 will not be permitted to register for any succeeding semester unless he petitions for and receives the permission of the Scholarship Committee so to register.

A student who fails more than one course over his entire period of law study will not be permitted to register for any succeeding semester unless he petitions for and receives the permission of the Scholarship Committee.

* These rules apply to new and readmitted students beginning with the 1966-67 fall semester.

A student who is not permitted to register under the foregoing provisions will be excluded as of the beginning of the semester for which he was ineligible to register.

Students who are registered at the time they receive notice that they will not be permitted to register for the next semester are entitled to withdraw from school and to receive a full refund of the tuition for the semester, or to complete the work for which they are registered.

Any student excluded may petition for reinstatement; if he can demonstrate that his low grades were due to circumstances beyond his control and that he has the capacity to pursue the study of law with a definite likelihood of success, he may be readmitted subject to such conditions as may be imposed by the Scholarship Committee.

Despite the above provisions, a student will be allowed to complete his first two semesters of law study before he is denied permission to register for a succeeding semester.

The term "semester" includes a session of the summer term.

Candidates for Masters' and Doctoral Degrees.—A candidate for a Master's or doctoral degree whose work is not satisfactory in the opinion of the faculty, taking into consideration the requirements and standards for the degree, may, by action of the faculty, be excluded at the end of the semester for which he is currently registered.

Unclassified Students.—An unclassified student whose work is not satisfactory in the opinion of the faculty may, by action of the faculty, be excluded at the end of the semester for which he is currently registered.

SUMMER SCHOOL CREDIT

Students planning to attend summer school sessions at other law schools and desiring to use credits obtained at such schools in their Juris Doctor program at this Center must first have the courses they wish to take approved by the Dean. In no event will credits be recognized in excess of those which might be obtained in a similar period in this program.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No transcript will be issued for a person who does not have a clear financial record.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until all degree requirements are satisfied. Students who have completed course registration may maintain continuous registration by paying the "continuous registration" fee (see page 30). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," pages 27-28). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

Students granted military leave, see page 39.

GRADUATION REQUIREMENTS

Diplomas are awarded at a February Convocation, at a June Commencement, and in September.

To be recommended by the Faculty for graduation, a student must have met the admission requirements of the school; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree.

Application for Graduation.—An "Application for Graduation" form must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, provided they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

ACADEMIC DISHONESTY

Academic dishonesty on the part of any student will result in a disciplinary grade of *F* for the course involved and also may, upon the recommendation of the Dean's Council, result in his suspension from the University for a stated period, at the end of which time he may petition for readmission. The disciplinary grade of "Failure—Academic Dishonesty" will be recorded for the course involved, and this grade will be employed in the computation of the quality-point index. A student so suspended shall be withdrawn from all other courses except those in which all work has been completed.

MILITARY LEAVE

A student called to active duty may be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University prior to the semester in which he expects to return. If a student is granted military leave before he completes a semester for which he has paid all or part of his tuition, this payment will be credited to his account for use upon his return to the University. In no case will tuition be refunded to a student granted military leave.

UNIVERSITY POLICY ON THE RELEASE OF STUDENT INFORMATION

In general, the policy of the University is one of attempting to keep the student's record confidential and out of the hands of those who would use it for other than legitimate reasons. At the same time, the policy must be flexible enough not to hinder the student, the University, or the community in their legitimate endeavors.

No information concerning a student will be released by the Office of the Registrar, except as noted below, save on court order or subpoena, or upon written request by the student:

1. Information which is of public record, such as whether or not the student is currently enrolled; dates of attendance; whether or not he received a degree; current address and telephone number; the school or college in which he is enrolled.

2. The issuance of formal transcripts of record to recognized institutions of higher learning; the certification of academic achievement to the various recognized professional associations (law, medicine, engineering, education, etc.); and the inspection of records, under appropriate supervision, by properly validated representatives of government investigative agencies.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

RIGHT TO DISMISS STUDENTS

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration.

The right is reserved by the University to dismiss or exclude any student from the University or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.



Student Services

RESIDENCE HALLS

COMPLETE INFORMATION concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing near the University may be obtained at the Deans' offices. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive, with his notification of acceptance, a University residence hall brochure, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. If a student wishes to apply for residence hall space, the medical examination form must be completed by the applicant and his physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a \$100 nonrefundable deposit, which is credited toward the fall-semester room charge. Rooms are leased for the academic year, and payment must be made in advance of each semester. The following residence hall rates are for the two semesters of the academic year 1968-69 and are subject to change in future years.

1968-69 RESIDENCE HALL RATES FOR TWO SEMESTERS

Madison Hall (men): room and food service, \$1,050; room only, \$500
Graduate Women's Hall (women): room and food service, \$1,235; room only, \$685

FOOD SERVICE

Well-balanced meals are served cafeteria style seven days a week (20 meals). Food service payment does not cover University holidays or vacation periods. All meal cards admit to the dining rooms in Thurston, Mitchell, and Welling Halls. Residents of Madison Hall and the Graduate Women's Hall may use the dining room on the second floor of the Student Union.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 10 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (2)

hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.* All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Physical Education.

HEALTH AND ACCIDENT INSURANCE

In addition to the above services, the Health Services staff has arranged for Health and Accident Insurance, on an elective basis, for all full-time students. This policy covers the participant for 12 months whether at home, at the University, or elsewhere.

Current yearly cost is \$34.56 (subject to change) payable at the fall registration. Arrangements can be made to pay in two installments of \$17.28 at the fall and spring registrations.

This policy contract is between the individual student and the insurance carrier and is accepted at any hospital or emergency room that accepts this type of medical work. Details of the policy are available at the Health Services Office.

STUDENT EMPLOYMENT

The Law Center helps in the placement of its students and maintains a placement service for that purpose. In addition, the Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., provides assistance to students seeking full-time, part-time, or temporary employment. This Office maintains a registry of positions available and refers qualified applicants for consideration. Information is also available on Civil Service examinations.

A student taking more than ten semester hours must limit outside employment to less than twenty hours (see "Academic Work Load," pages 35-36). It

* See rule (4) for exception.

is urged that full-time students refrain from engaging in outside employment during their first year. Although work in some special areas may contribute to the learning and experience of the student, as a general rule it will compete with time needed for adequate study and preparation, which are at the heart of a good legal education.

PLACEMENT SERVICE

The Law Center takes a continuing interest in the placement of its graduates in private practice and governmental service as well as with industry and commerce. The Dean, the Faculty, and the Placement Office cooperate in collecting information from alumni, law firms, and government agencies concerning opportunities in legal positions throughout the country. Senior law students and recent graduates are urged to keep in touch with the Law Center Placement Office.

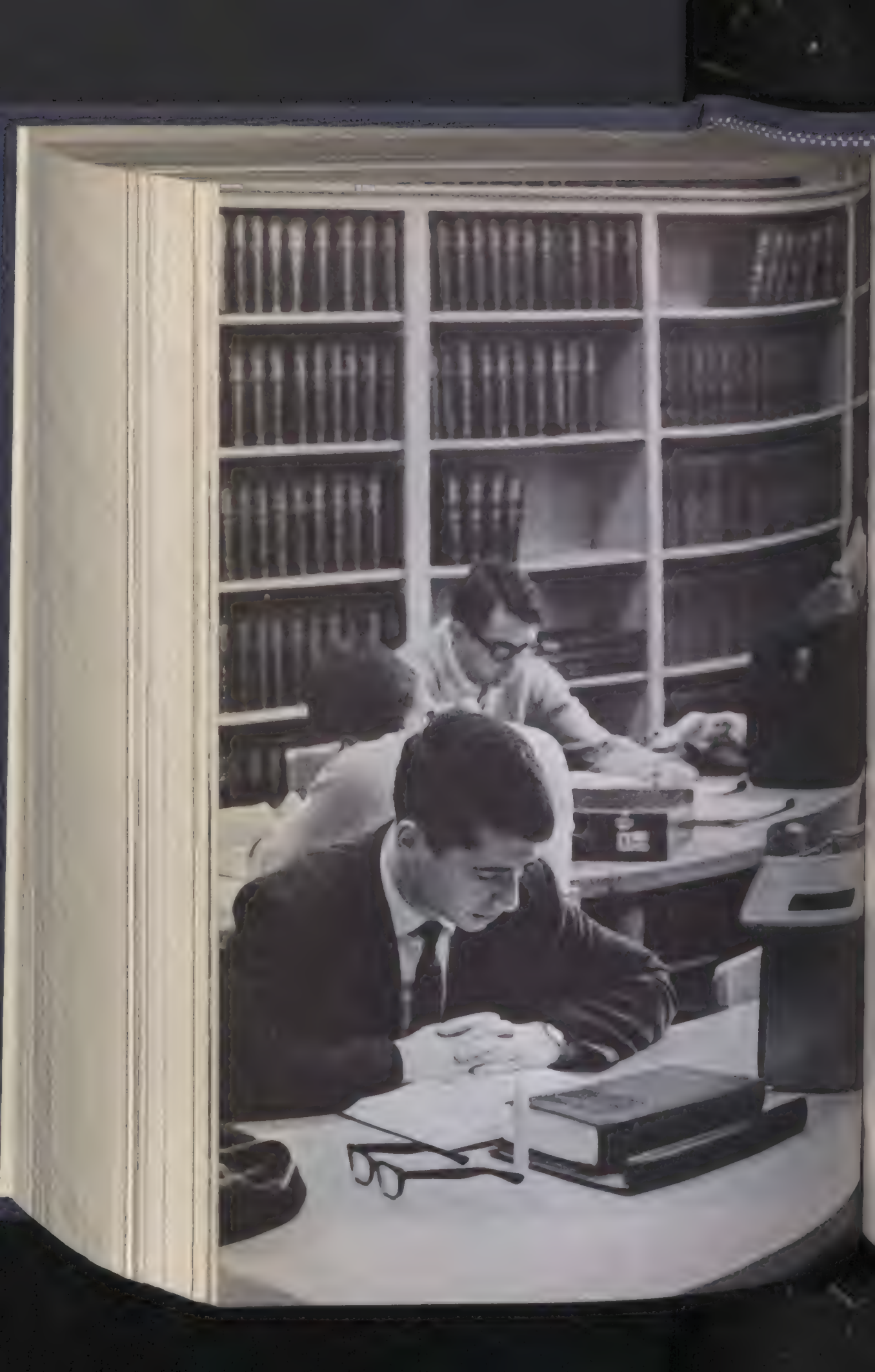
VETERANS EDUCATION

The Office of the Registrar, Luther Rice Hall, 2121 Eye Street, N.W., assists students entitled to educational benefits as veterans or war orphans with any problems which may arise concerning their benefits. This Office also processes certification of enrollment and attendance to the Veterans Administration so that monthly allowances will be paid.

When feasible, students entitled to benefits as veterans or war orphans should consult the Office of the Registrar prior to submitting application to the Veterans Administration. All such students should obtain the instruction sheet issued by the Office of the Registrar, which sets forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration, and which includes other information of general interest.

The Veterans Administration is at 2033 M Street, N.W., Washington, D.C. 20421.





COURSES OF INSTRUCTION

THE COURSES OF INSTRUCTION listed below are subject to change. The University reserves the right to withdraw any course announced.

The number of hours of credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving two hours of credit each semester is marked (2-2), and a semester course giving two hours of credit is marked (2).

Courses and seminars marked (RP) require the preparation of a research paper in lieu of an examination.

Day classes begin at 9:10 a.m. and run throughout the entire morning and afternoon. Evening classes begin at 5:50 p.m. Many examinations for both day and evening classes may be given in the afternoon only.

COURSES FOR JURIS DOCTOR CANDIDATES

Required courses are numbered from 201 to 300. Courses numbered from 301 to 400 are normally taken by second- and third-year students. Courses numbered from 401 to 600 are generally more advanced. Second-year students may take courses numbered above 400 only with the permission of the Dean. Third-year students are encouraged to take one course numbered above 400 each semester, and may take more than one such course with the permission of the Dean.

REQUIRED COURSES

203-4 Contracts I-II (2-4)

(Formerly Law 115-16)

Freedman, Pock, Nash, Ginsburg

Legal remedies of contracting parties, including damages in contract and quasi-contract, specific performance, reformation, rescission, remedies in tort; acts creating and terminating contractual rights, including offer and acceptance, mistake, problems of proof; function of consideration; conditions; assignments; third-party beneficiaries; effect of changed circumstances; protection of the client's interests upon breach or threat of breach by the other party. Emphasis on problems of analysis, draftsmanship, adversary method. (Academic year—day and evening.)

207-8 Torts I-II (3-2)

(Formerly Law 161-62)

Merrifield, Seidelson, Park, Banzhaf

Liability for harm to person or property. Intentional torts, negligence, nuisance, products liability, misrepresentation, defamation, and invasion of

privacy; fault and other basis for shifting losses; causation; damages; effects of liability insurance; problems under Federal Tort Claims Act. (Academic year—day and evening)

209 Personal Property (2)
(Formerly Law 145)

Kayton, Clingan, Potts, Ginsburg

Concepts, meanings of term "possession," methods of acquiring ownership, problems in bailment cases, basic principles of liens and pledges. (Fall—day and evening)

210 Real Property (4)
(Formerly Law 150)

Schiller, Starrs, J. Brown

Historical background of the law of estates and conveyancing; types of estates; dower and curtesy; landlord and tenant relationship; concurrent estates; future interests at common law and after the Statute of Uses; Rule Against Perpetuities; incidents of divided ownership, as waste; natural rights. (Fall—evening; spring—day; summer 1968)

212 Constitutional Law (4)
(Formerly Law 110)

Dixon, Miller, Barron, H. Green

Basic principles of American constitutionalism; judicial function in constitutional cases; implementation of doctrines of separation of powers, federalism, limited government; development and exercise of national powers; introduction to civil rights and liberties. (Spring—day and evening)

215 Criminal Law and Procedure (4)
(Formerly Law 125)

D. Green, Starrs, Robinson, Allen

Origin and purposes of criminal law; elements of criminal liability; mental disorders; crimes against the person, property, and against both; statutory offenses; criminal procedure, with consideration of Federal Rules of Criminal Procedure. (Fall—day; spring—evening)

218 Civil Procedure (4)
(Formerly Law 215)

D. Green, Sharpe, Barron, Park

Mechanics of litigation—rules which govern process by which rights and duties studied in substantive law courses are enforced; pleadings, discovery, pre- and post-trial motions, jurisdiction and venue, equity jurisdiction and trial by jury, former adjudication. Emphasis on Federal Rules of Civil Procedure, but principles and main problems indigenous to all procedural systems are developed. (Fall—day and evening; summer 1968)

220 Legal Method and Legal System (3)
(Formerly Law 135)

H. Green, J. Brown, Banzhaf, Allen

Introduction to substantive and procedural law dealing with basic concepts; training in method and technique of case law and legislation using modern case records; practice in use of law books and in legal writing; importance of language in law; legal reasoning and use of precedents under doctrines of stare decisis, law of the case, and res judicata; development of Anglo-American legal system; organization of judiciary and bar, stressing enforcement of ethical standards. (Fall—day and evening)

232 Evidence (4)
(Formerly Law 240)

Seidelson, Robinson

Preparation and presentation of evidence, including proof of writings; qualification and examination of witnesses with emphasis on impeachment.

privilege; opinion testimony; determination of relevancy; demonstrative, experimental, scientific evidence; application of the hearsay rule. (Spring—day and evening; summer 1968)

234 **Administrative Law (3)**
(Formerly Law 202)

Davison, Miller, Park

Position of administrative process in separation of powers, including status of administrative personnel, administrative hearings, judicial scrutiny of administrative action, discretion, rule-making—particularly as relating to federal administrative agencies. (Spring—day and evening; summer 1968)

ELECTIVE COURSES

302 **Admiralty (2)**

Clingan

Doctrines originating in admiralty courts—prize, maritime liens, salvage, general average, negligence in ship collisions and otherwise, maintenance and care, unseaworthiness; maritime law from legislative origins—personal injury and death remedies, limits on shipowners' liability, regulation of carriage of goods and persons; admiralty jurisdiction and maritime law in the federal system. (Fall—day)

303 **International Law and World Order (3)**
(Formerly Law 254)

Mallison

Traditional content of introductory course in international law presented in context of values and institutions of world community; emphasis upon national states as participants in decision-making processes with consideration also of individuals, international public organizations, political parties, pressure groups, private associations; analysis of range of available sanctions; roles and effects of international agreements under United States Constitution; introduction to the law of war. Complements but does not repeat material in Law 391. (Fall—day and evening; summer 1968)

307 **Comparative Law (3)**

Davison

Civil Law System, general introduction to foreign law as exemplified by Roman Law and French and German Civil Codes, comparative study of administration of justice and legal institutions. Delictual and contractual obligations. (Fall—day)

309 **Conflict of Laws (3)**

Dixon, Seidelson

Legal problems arising from occurrences transcending state or national boundaries; jurisdiction; foreign judgments; constitutional influences; theoretical bases of choice of law principles and their application to specific fields, including torts, contracts, property, family law, administration of estates, business associations. (Fall—day and evening; summer 1968)

311 **Business Associations I (2)**
(Formerly Law 209)

Schiller, Sharpe, Carlson

Legal principles concerning association in business by agency, partnership, other unincorporated forms, and corporations, creation, form and nature of agency, partnership and corporation; basic principles of agency and partnership and introductory related principles of corporation law. (Fall—day and evening; summer 1968)

312 Business Associations II (4)
(Formerly Law 210)

Kirkpatrick, Manne, Carlson

Corporate law, with emphasis on operations and financing of corporations. Control of corporations, action by corporate directors, officers, shareholders. Control devices. Directors' and shareholders' duties of care and loyalty, insiders' transactions in shares of the corporation. Derivative suits, kinds of shares, dividends, corporate distributions. (Spring—day and evening)

313 Sales and Sales Financing (2)
(Formerly Law 224 Sales and Sales Financing (3))

Albert, Rothschild

Provisions of the Uniform Commercial Code relating to sale and distribution of goods, including bulk transfers, warehouse receipts, bills of lading, and other documents of title; particular attention to secured transactions and financing devices utilized in this connection. (Fall—day and evening; summer 1968—offered as Law 224 Sales and Sales Financing (3))

314 Commercial Paper, Check Collection, and Banking (2)
(Formerly Law 219 Commercial and Investment Paper (3))

Albert, Rothschild

Classic view of negotiable instruments as codified by Article III of the Uniform Commercial Code. Check collection: the system in theory as expressed in Article IV of the Uniform Commercial Code and the system in practice; Federal Reserve regulations, Clearing House agreements, and automation systems. The dual banking system, work of the Comptroller General and the Federal Reserve Board. Legal problems concerning interest and the checkless society. (Spring—day and evening; summer 1968—offered as Law 219 Commercial Paper (3))

318 Creditors' Rights (3)

Kirkpatrick

Creditors' remedies outside bankruptcy—compositions, agreements, general assignments; bankruptcy proceedings under the federal statute, administration, discharge, the position and powers of the trustee, preferences; corporate reorganization under Chapter X of the Bankruptcy Act. (Fall—day and evening)

***321-22 Current Decisions (2-2)**

Limited to members of the student staff of the Law Review. (RP)
(Academic year—day and evening)

325-26 Trusts and Estates I-II (3-3)
(Formerly Law 285-86)

Weaver, Kuhn, Soled

Noncommercial transfers of wealth at death or during life. First half: essential elements and formalities for creation of trusts and execution of wills, revocation and alteration, grounds for contest, limits on property owner's power to control, intestate succession. Second half: dispositive provisions, common questions of construction, future interests problems, administration of estates and trusts, charitable trusts. Prerequisite to Law 325; Law 210; to Law 326; Law 325. (Academic year—day and evening; summer 1968—Law 325)

Weston

329 Unfair Trade Practices (3)
(Formerly Law 295)

Unfair trade practices at common law and under statutes; trademarks, trade names; copyright law; misappropriation of ideas; protection of com-

* The grade CR (credit) or NC (no credit) is given for this course.

petitors and consumers against false advertising under Federal Trade Commission Act; resale price maintenance under state Fair Trade Acts; state sales-below-cost statutes; Robinson-Patman Price Discrimination Act; miscellaneous business practices. (Fall—day and evening)

- 330 **Federal Antitrust Laws (3)** Weston, Kirkpatrick, D. Green
Sherman and Clayton Acts, related statutes. Price fixing agreements and other types of trade restraints considered under Section 1; monopolizing considered under Section 2 of the Sherman Act. Mergers and tie-in sales; other activities under the Clayton Act. All types of business conduct raising questions under the antitrust laws, including trade association activities, exclusive-dealing arrangements, boycotts, patents and copyrights. (Spring—day and evening; summer 1968)

- 332 **Federal Jurisdiction (2)** Albert, Barron, Sharpe
(Formerly Law 243)
Relationship of federal courts to Congress and to the states, through analysis of cases dealing with federal judicial functions (including problems of advisory opinions, standing to litigate, justiciability), federal questions in federal courts, federal review of state court decisions (including relation between state and federal substantive law, procedural problems in exercising review, application of law to fact). (Spring—day and evening; summer 1968)

- 334 **Advanced Criminal Procedure (2)** Robinson
Decision to arrest, prosecutive discretion, bail, the preliminary hearing, right to a speedy trial, discovery, plea bargaining, publicity, post-conviction procedures. (Spring—day)

- 335 **Jurisprudence (2)** Mayo, Kramer
Basic jurisprudential concepts; nature of law; development of legal institutions; jurisprudential schools—natural law, analytical, historical, sociological, functional; law and logic; law and justice; the judicial process; legislative, executive, administrative decision making; impact of politics, economics, and scientific advance on legal systems; contemporary trends in jurisprudential thought. (Fall—evening; spring—day)

- 336 **Taxation—Federal Income (3)** Hambrick, Weaver
(Formerly Law 279)
Survey of substantive provisions of federal income tax, including concept of gross income, provisions affecting taxation of family and individual transactions, limitations on allowable deductions, sales and dispositions of property, problems of capital gains taxation, nontaxable exchanges. (Fall—day and evening; summer 1968)

- 337 **Taxation—Corporate (2)** Hambrick, Tannenwald
Analytical study of income tax problems in corporate dividends and distributions in redemption of stock; corporate liquidations; reorganizations, mergers, acquisitions; recapitalizations; organization and sales of corporate businesses; collapsible corporations; carry-overs. Prerequisite: Law 336. (Spring—day and evening)

- 338 **Taxation—Federal Estate and Gift (2)** Kramer, Hambrick
(Formerly Law 274)
Survey of substantive provisions of federal estate and gift tax laws, including inter vivos transfers, transfers in contemplation of death, joint interests, life insurance proceeds, property subject to powers of appointment.

marital deduction and split gifts; tax procedure. (Fall—day and evening)

- 339 **Collective Bargaining and Labor Arbitration (2)** Merrifield, Rothschild
Collective labor agreement: content, negotiation, administration through grievance procedure and arbitration; problems in settlement of labor disputes. (Fall—evening; spring—day)

- 341 **Labor Law (3)** Merrifield, Albert, Rothschild
(Formerly Law 259)

Law governing labor-management relations, organizations and representation of employees, regulation of economic weapons, enforcement of collective bargaining agreements, interunion and intraunion relations. (Fall—day; spring—evening; summer 1968)

- 344 **Legal Writing (1 or 2)** Staff

Preparation of a research paper under the supervision of a member of the Faculty who will determine, prior to registration, whether the work required for the topic selected justifies one or two credits. If elected for one credit this course may be repeated to meet the legal writing requirement for the degree. Approval of the Dean is required prior to registration. (RP) (Fall and spring—as arranged)

- 347 **Insurance (2)** Schiller
(Formerly Law 251)

A primary risk distributing medium and the rules by which legislative, administrative, judicial bodies seek to promote its benefits and avert its dangers. Includes insurance marketing, insurable interest, subrogation, transfer of insurance benefits to nonpolicyholders, coverage and other insurance policy provisions, disposition of claims. (Fall—day; spring—evening; summer 1968)

- 348 **Domestic Relations (2)** Potts, Seidelson, Clingan, Ferster
(Formerly Law 235)

Marriage, annulment, and divorce; adoption and custody of children; economic relations. (Spring—day and evening; summer 1968)

- 349 **Local Government Law (2)** Nutting, Pock

Decision-making processes in metropolitan and local communities; types and objectives of city, county, special function local government units; intergovernmental relations; original organization and changes; personnel; local lawmaking; responsibility in tort; introduction to community planning. (Fall—day and evening; summer 1968)

- 351 **Law and Accounting (2)** S. Cohen, Cibinic, Eichler
(Formerly Law 265)

Study of fundamental accounting principles with emphasis on corporation accounting; legal and accounting implications of specific items in financial statements of corporations; inventory adjustments; corporate transactions, distributions, capital adjustments. Strongly recommended for students who have had no accounting. (Fall—evening; spring—day)

- 355 **Government Contracts (2)** Nash, Cibinic

Survey of basic law underlying government procurement, basic power and limitations on Federal Government in entering into contracts, administrative and legislative policies governing these contracts, advertised and

negotiated procurement procedures, forms of contracts and clauses used. Law 431 *Government Procurement Law* is the substantial equivalent of this course. (Fall—day)

359 **Patent Law (3)**

Kayton

Law of patents subsequent to issuance of patent; nature of patent as property and as a legal instrument; validity—novelty, nonobviousness, commercial success; infringement—direct and contributory, doctrine of equivalents and file-wrapper estoppel. Substantive concepts introduced in an order approximating patentee's and infringer's cases in litigation. Designed for students intending to specialize in patent law; knowledge or experience in patent law helpful but not prerequisite. (Fall—evening)

362 **Patent Office Practice (2)**

Kayton

Substantive and procedural law of patents leading to issuance of patent, mainly related to proceedings before U.S. Patent Office. Obtaining and preserving earliest possible patent filing date; continuing applications, res judicata, novelty and nonobviousness requirements; substantive rules of priority of invention and related affidavit practice; nature of claims and formal defects; restriction and double patenting. Designed for students intending to specialize in patent law. Prerequisite: Law 359 or the equivalent in experience. (Spring—evening)

*365 **Patent Trial and Appellate Practice (2)**

T. Brown

Practice before U.S. Court of Customs and Patent Appeals and federal courts. Credit is not given to students who have credit for Law 385. Prerequisite: Law 359, 362, and forty-two additional hours of Law. Prerequisite or concurrent registration: Law 218 and 232. (Fall and spring—evening)

*366 **Patent Trial and Appellate Practice (1)**

T. Brown

Prerequisite: Law 365 or 385. (Fall and spring—evening)

374 **Equity (2)**

Nutting, Pock, Banzhaf

(Formerly Law 238)

Nature of equity jurisprudence through analysis of selected problems in equity; historical development of equity, including problems of merger of law and equity; use of equity jurisdiction offensively and defensively, including multi-party actions, injunction of executive and legal actions, equitable abstention; emphasis on fashioning of equitable remedies. (Spring—day and evening; summer 1968)

376 **Restitution (2)**

Sharpe, Pock, Nash

Quasi-contracts, constructive trusts, rescission, and other legal and equitable remedies for restoring property and money which unjustly enrich others at the expense of volunteers, victims of misappropriation, and parties to mistaken contracts. (Fall—evening; spring—day; summer 1968)

377 **Legislation (2)**

Nutting

(Formerly Law 270)

Legislative process and roles of participants in the process; operation of United States Congress and state legislatures, including fact finding, organization, procedure. Statutory interpretation emphasized to provide foundation for more advanced courses. (Fall—day and evening; summer 1968)

* The grade CR (credit) or NC (no credit) is given for this course.

378 Suretyship and Mortgages (3)

Clingan

(Formerly Secured Transactions)

Security interests in real property, their creation, transfer, enforcement, and extinguishment; the law of suretyship, especially in the context of accommodation credit, and the relationship of suretyship contracts and negotiable instruments. Creation of the surety relation, rights and duties of the parties, defenses and discharge of the surety. (Spring—day)

***385 Trial Practice Court (2)**Jackson, Edgerton, Herrick, Ryan,
Beard, Kendrick, Skinker, Clingan, Stevas

Trial of assigned cases, trial tactics and techniques, pre-trial and court room procedures pursuant to Federal Rules. Credit is not given to students who have credit for Law 365. Prerequisite: forty-two semester hours, including Law 218. Prerequisite or concurrent registration: Law 232. (Fall and spring—day and evening)

***386 Trial Practice Court (1)**Jackson, Edgerton, Herrick, Ryan,
Beard, Kendrick, Skinker, Clingan, Stevas

Prerequisite: Law 385 or 365. (Fall and spring—day and evening)

388 Appellate Practice and Procedure (2)

Freedman

(Formerly Law 205)

Students participate in preparing an actual criminal case on appeal, starting with review of trial transcript and culminating with preparation of brief and oral argument before U.S. Court of Appeals for the District of Columbia Circuit or the U.S. Supreme Court. Appellate practice and procedure studied through texts; consultation with appellate judges, law clerks, and attorneys with cases pending on appeal; observation of arguments in the Supreme Court and the Court of Appeals. Admission by permission of the instructor. (Not offered 1968-69)

391 United Nations Law and World Order (2)

Mallison

Introduction to international law through study of law and practice of United Nations Charter; structure and process of decision of United Nations; maintenance of international peace and security—peaceful settlement of disputes and national and collective self-defense; formulation and implementation of human rights. Complements but does not repeat the material in Law 303. (Spring—day and evening)

ADVANCED COURSES**ADMINISTRATIVE LAW: ECONOMIC REGULATION**

Miller

402 Executive Function (2)*(Formerly Law 425)*

Executive branch in constitutional theory; major trends in development of Executive-Administrative function; organization of Executive branch; relationship of Executive to Congress and Judiciary; policy-making procedures within Executive branch including role of Bureau of the Budget in national policy planning; case studies in exercise of Executive power in such functional areas as national defense, race relations, national economy, foreign economic relations; role of law and lawyers in Executive decisional and implemental process. (RP) (Fall—evening)

* The grade CR (credit) or NC (no credit) is given for this course.

403 Economic Planning and the Law (2)
(Formerly Law 427)

Stark

Interrelation of law and economics in such subject matter categories and decisional contexts as antitrust laws, economic regulation of industry, fiscal policy planning, government research and development practices, land use planning, and foreign trade and investment. (RP) (Fall—evening)

404 Securities Regulation (2)
(Formerly Law 466)

Manne, H. Green

State and federal laws governing offering and distribution of securities to the public by corporate issuers and others, regulation of securities markets, rights and liabilities of purchasers under such statutes. Emphasis on statutes administered by Securities and Exchange Commission. (Fall—evening)

405 Regulation of Securities Markets (2)
(Formerly Law 467)

Rotberg

Operation of over-the-counter and exchange markets, including competitive and monopolistic practices in each market; relationship of antitrust laws and securities regulations to concept of a free and open market place; role of regional exchanges and third market in providing competitive element in market; advantages and disadvantages of a fragmented market; minimum fee structure, rebates and their effect on merchandising of securities and financial soundness of industry; use and availability of economic data in evaluating performance of market place. The seminar will examine matters directly of interest to graduate law students, lawyers, economists, and political scientists. (Spring—evening)

407 Seminar: Regulation of Transportation I (2)
(Formerly Law 493)

Hill

History of development of modes of transportation in the U.S.; economic problems and growth of regulatory legislation and philosophy; the Congressional power to regulate; the scope of federal regulation; agency administration, enforcement, and procedure; introduction to principles of certification and rate making. (Fall—evening)

408 Seminar: Regulation of Transportation II (2)
(Formerly Law 494)

Hill

Principles of certification of rail, motor, water, and air carriers; elements and principles of rate making; comparison of problems, procedures, and regulatory philosophies of the various regulatory agencies. (Spring—evening)

409 The Civil Aeronautics Board and the Administrative Process (2) **Park**
(Formerly Law 491)

The substantive problems of business regulation studied in terms of a representative industry, air transportation. Student insight into administrative practice is developed in terms of one industry's firms, trade associations, and agencies. Problems studied include the large administrative proceeding, regulation's impact upon management and market behavior, the uses and abuses of economic evidence, the role of the agency's staff, interagency planning and regulation, and the effects of judicial and legislative review. (RP) (Spring—day)

412 Food and Drug Law (2)
(Formerly Law 428)

Goodrich, Kaplan, Kleinfeld

The Federal Food, Drug, and Cosmetic Act and governmental controls thereunder. Both government and industry viewpoints are considered. (Spring—evening)

413 Public Policy and Mass Media (2)
(Formerly Law 463)

Cohn

Institutional structure of mass media and their interrelationships; the psychological aspects of communications; the continuing adjustments among public interests goals, the economic system, and technological developments; influence of and controls exercised by government, other institutions, and private groups; conflict between freedom of speech and of the press and other major community interests; the media's relationships to the civil rights movement; open to nonlegal graduates and graduate students with permission of the instructor. (RP) (Spring—evening)

Weston

417 Seminar: Trade Regulation (2)
(Formerly Law 492)

Group study of current problems relating to unfair trade practices and federal antitrust laws. (RP) (Not offered 1968-69)

Davison

418 Seminar: Administrative Law (2)
(Formerly Law 401)

Group study of specific problems in administrative law. (RP) (Spring—day)

Master of Laws candidates in the area of Administrative Law: Economic Regulation who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

- 234 Administrative Law
- 329 Unfair Trade Practices
- 330 Federal Antitrust Laws

OTHER RELATED COURSES

- 451 Federal Programs for Urban Poverty
- 493 Intergovernmental Aspects of Technological Change
- 494 Use and Control of Atomic Energy and Space Technology
- 505 Intergovernmental Relations I
- 506 Intergovernmental Relations II
- 571 Land Use Planning

CORPORATION LAW

Manne

422 The Modern Corporation (2)
(Formerly Law 413)

Application of principles of economics to corporate legal problems. Examination of fights for control, shareholder voting, impact of stock market on management, and effects of SEC, tax, and antitrust laws on corporate control. (RP) (Not offered 1968-69)

424 Business Planning (2)

H. Green, Manne, Carlson

Integrated study of corporate, financial, tax, accounting, and SEC aspects of the following: organization of a small corporation; organization of a public corporation; stock dividends, recapitalization, and stock repurchases in the context of conflict between active stockholders of a close corporation and the family of a deceased active stockholder; corporate liquidations; corporate mergers and acquisitions; and divisions of corporations. Prerequisite: Law 312 and 351. (Not offered 1968-69)

425 Economic Theory for Lawyers (2)

De Alessi

Study of basic concepts of economics used in the law: price and market theories emphasizing the recent discoveries in the economics of information and uncertainty; the economics of controls as used by government agencies which regulate various portions of economy; externalities (costs not assumed by parties to a private contract) as related to air and water pollution and the law of nuisance; and the economics of monopoly and oligopoly. (Fall—day; spring—evening)

427 Legal Aspects of International Business Transactions (2)

Nurick, Goekjian

(Formerly Law 440)

U.S. law and practice, including current antitrust and tax problems; brief comparison with British and Civil Law systems; international law, foreign contracts, choice of law; currency considerations; effect of SEC laws and regulations; international trade, including GATT and reciprocal trade arrangements; sources of finance, both United States and foreign, private and public, including international organizations; and selected case studies. In addition to the regular lecturers, there will be guest lecturers in their specialties. Prerequisite: Law 303. (Spring—evening)

Master of Laws candidates in the area of Corporation Law who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

- 312 *Business Associations II*
- 313 *Sales and Sales Financing*
- 329 *Unfair Trade Practices*
- 330 *Federal Antitrust Laws*
- 337 *Taxation—Corporate*

OTHER RELATED COURSES

- 431 *Government Procurement Law*
- 541 *European Common Market*
- 555 *Taxation—Special Corporation Problems*
- 562 *Income Taxation of Foreign Business and Investment*

GOVERNMENT PROCUREMENT LAW**431 Government Procurement Law (2)**

McIntire

Survey of the law pertaining to government procurement, including an analysis of the unique features of government contracting and a discus-

sion of the functions of Congress, the Executive branch, and the Courts in the procurement process. Law 355 *Government Contracts* is the substantial equivalent of this course. (Fall—evening)

432 Formation of Government Contracts (2)

McIntire

Detailed coverage of the rules and practices followed in arriving at contracts between the Government and private parties. Comparison in depth of advertised and negotiated procurement and analysis of the techniques used in pricing and arriving at the terms of such contracts. (Spring—evening)

433 Performance of Government Contracts (2)

Nash, Cibinic

Discussion of the substantive legal problems that most frequently arise during the performance of government contracts. Interpretation of specifications and the most generally used contract clauses, and analysis of the rights of the parties when performance in accordance with the terms of the contract is not obtained. (Spring—evening)

434 Government Contract Claims and Litigation (2)

Nash, Ginsburg

Analysis of the methods which can be used by the parties to a government contract to obtain legal relief, including detailed coverage of the disputes procedure, actions for breach of contract, and forms of equitable and extraordinary relief. (Fall—evening)

435 Seminar: Government Contracts (2)

Nash, Cibinic, Ginsburg

Research and discussion of selected problem areas. (RP) (Summer 1968)

OTHER RELATED COURSES

402 *Executive Function*

424 *Business Planning*

427 *Legal Aspects of International Business Transactions*

442 *Labor Standards Legislation*

494 *Use and Control of Atomic Energy and Space Technology*

495 *Legal Protection against Technological Hazards*

505 *Intergovernmental Relations I*

506 *Intergovernmental Relations II*

535 *Negotiation: Concepts and Techniques*

LABOR LAW

441 Seminar: Disability and Retirement Problems (2)

Doherty

Study of selected problems under workmen's compensation; old age, survivors, and disability insurance; medicare; and private welfare and pension plans. (Fall—evening)

442 Labor Standards Legislation (2)

Ginsburg

Analysis of the Fair Labor Standards Act, its scope and exemptions, employee working conditions and safety requirements; the laws establishing labor standards for Government contracts, including the Davis-Bacon Act, Walsh-Healey Act, Service Contract Act, and Work Hours Act; the role of the Department of Labor, the Comptroller General, and the contracting agencies in interpretation, administration, and enforcement of these statutes. (Spring—evening)

443 Labor Relations in the Federal Service (2) Holland

Detailed study of labor relations in the federal service. Particular attention to current problems arising from the President's Task Force Report and the Executive Order of January 17, 1962, creating a new system of collective relationships between employee organizations and the Federal Government. (RP) (Fall—evening)

444 Labor Unions and Their Members (2) Bartosic
(Formerly Law 447)

Study of the legal relations between unions and their members with special emphasis on the right to fair representation, the right to union membership, compulsory union membership, the imposition of discipline upon union members, reporting requirements, the conduct of internal union elections, the fiduciary duties of union officers, the imposition of trusteeships, the regulation of racketeering, and political action of unions. (Summer 1968)

447 Seminar: Labor Law (2) Merrifield
(Formerly Law 442)

Group study of contemporary problems in labor law. (RP) (Spring—evening)

449-50 Seminar: Labor Litigation (1-1) Bartosic

Intensive study of recent Supreme Court and appellate court decisions in the area of labor law; special emphasis on the contrasting variables which influence the respective decision-making processes of the National Labor Relations Board and the courts. Particular attention to labor law cases pending before the Supreme Court for decision during the current term. Analyses of the briefs filed in pending cases; attendance at oral argument; post mortems of the arguments and decisions, with classroom participation by attorneys involved in some cases. Grades and credit for both halves of the course assigned only on completion of the second half. (Academic year: every other week—evening)

Master of Laws candidates in the area of Labor Law who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

339 Collective Bargaining and Labor Arbitration**341 Labor Law****OTHER RELATED COURSES****425 Economic Theory for Lawyers****459 Problems of the Consumer****460 Current Problems in Civil Rights****461 Social Welfare Legislation and Administration****LAW AND POVERTY****451 Federal Programs for Urban Poverty (2)**

Study of the legislative and administrative process by which particular urban problems are converted into a grant of statutory authority, an operating program, and finally a funded project in a given city. Areas con-

sidered will be employment and job training programs such as USFS and vocational education programs, the Manpower Development and Training Act, Job Corps, and Neighborhood Youth Corps; elementary and secondary education programs such as Titles I and III of the Elementary and Secondary Act; and the Community Action and Model Cities programs. (Fall—day)

453 Community Organizations (2)

Analysis of past efforts to create community organizations in areas of poverty; alternative forms of organization, including cooperatives, unincorporated associations, and nonprofit corporations, and the advantages and disadvantages of each; functional organizations such as community councils, tenant unions, consumer cooperatives, and credit unions; community participation in Model Cities and OEO programs; problems relating to community action, such as the status of boycotts under antitrust and common law, the Constitutional protection afforded to demonstrations, and limitations imposed on community action supported by public funds. (Fall—day)

458 Housing the Poor (2)

Survey of the private and public law of urban housing; the economics of urban housing and slum ownership; the current assault on traditional concepts of landlord-tenant law: the lease as contract or conveyance, implied warranties and dependent covenants, constructive eviction, adhesion contracts, and retaliatory eviction; government intervention in the landlord-tenant relationship—housing codes and their enforcement, rent withholding and receivership statutes, and statutory leases; government programs designed to increasing the urban housing supply—FHA-guaranteed mortgages, "turnkey" and rent supplements, urban renewal and relocation. (Spring—day)

459 Problems of the Consumer (2)

Analysis of installment buying among the urban poor: applicability of usury statutes to noninterest "charges"; legal attacks upon the "time-price" concept; assertion of defenses against finance companies as assignees and holders in due course; waiver of defenses, default and confession judgments, and the cognovit note; "adhesion contracts," "unconscionability," and other recognition of the unequal bargaining relationship; problems relating to repossession, sale, and resale. Bankruptcy and Chapter XIII wage-earner plans as remedies for the urban consumer with overextended credit; noncredit problems of the urban consumer: price discrimination, remedies against deceptive practices, problems relating to breach of warranty, and proposed legislation such as the Uniform Consumer Credit Code. (Spring—day)

460 Current Problems in Civil Rights (2)

Primary focus on legal problems of racial discrimination in housing, education, and employment through an evaluation of the work done in these areas by the Department of Justice; the Equal Employment Opportunity Commission; the Department of Health, Education, and Welfare; and the National Labor Relations Board. Some consideration of parallel state experience and accommodation with the federal scheme. (Fall—day)

461 Social Welfare Legislation and Administration (2)

Study of public assistance, social insurance, and medical and legal assistance programs; the socioeconomic status of welfare recipients, the psycho-

logical impact of the welfare system, and the "Welfare Rights Movement"; particular legal issues, such as "midnight searches" and the Fourth Amendment, imposition of support obligations on non-fathers through the "Man-in-the-House Rule," imposition of moral behavior standards through welfare denial, right of privacy, and Constitutional issues raised by mandatory training or work requirements. (Spring—day)

462 Family Law of the Poor (2)

Consideration of the full range of problems associated with family formation and dissolution among the urban poor and the problems of urban children and their parents: the law of marriage, annulment, divorce, and separation as it affects the poor urban family unit; impact on the family of welfare and public housing eligibility regulations; legal problems associated with common-law marriage, illegitimacy, and meretricious relationships; scope of support obligations and sanctions imposed through welfare denial or eviction from public housing; organization of social services and their role in the solution of family problems; and the lawyer's role in family counseling. (Not offered 1968-69)

OTHER RELATED COURSES

- 441 Seminar: Disability and Retirement Problems
- 472 Administration of Criminal Justice
- 475 Law and Criminology I: Search for the Causes of Criminal Behavior
- 476 Law and Criminology II: Society's Responses to the Criminal Offender
- 477 The Police and the Community
- 560 Taxation—State and Local
- 571 Land Use Planning

LAW, PSYCHIATRY, AND CRIMINOLOGY

472 Administration of Criminal Justice (2)

Allen

(Formerly Law 415)

Consideration and analysis of selected advanced problems in the administration of criminal justice. The subject matter covered will vary from year to year, with concentration in areas of current interest and dynamic change (e.g., right to counsel, arrest and interrogation, search and seizure, prejudicial publicity, discovery, electronic interception, mental impairment). Emphasis will be placed on the role and professional responsibilities of prosecutor and defense counsel and on developmental trends in the law. (RP) (Fall—day; summer 1968)

475 Law and Criminology I: Search for the Causes of Criminal Behavior (2)

Courtless

(Formerly Law 417)

Role which criminological knowledge of crime causation may play in assisting lawyers to appraise the effectiveness of various alternative social and legal devices in controlling deviant behavior. The search for factors related to criminal behavior will be developed historically, with emphasis on current causal theories developed by various disciplines. Model as well as operational penal codes, sentencing and probation practices, and specialized facilities will be analyzed in terms of their relationship to such causal theories. (RP) (Fall—evening)

476 Law and Criminology II: Society's Responses to the Criminal Offender (2)
(Formerly Law 418)

Courtless

Study of the development and current use of society's three major approaches to the handling of offenders: punitive, mechanical, and correctional. Emphasis on society's changing responses to criminal and delinquent behavior, and research findings concerning effectiveness of these responses. Analysis of treatment strategies to facilitate communication between members of the legal profession and behavior scientists charged with effectuating these strategies. (RP) (Spring—evening)

477 The Police and the Community (2)

Allen, Courtless

Analysis of the variety, prevalence, and causes of urban crime; structure of police forces and proposals for improvement; exercise of discretion, abuse, or "brutality" at the time of arrest; problems of police-community relations and the role of review boards; crimes of the urban poor (such as vagrancy, "failure to move on," and public drunkenness) and their relationship to more serious criminal activity; the poor as victims of crime and efforts to protect them other than by police activity (e.g., compensation for victims of crime, and crime prevention through minimization of opportunity). (Not offered 1968-69)

478 Post-conviction Dispositions—Dynamics of the Law of Criminal Corrections (2)
(Formerly Law 416)

Barkin

Study of the statutes, practice, problems, and potentials of the alternatives facing a defendant including: mental fitness to proceed to trial, probation, sentencing, parole, correctional institutions, rights of prisoners. (Fall—evening)

486 Seminar: Law and Psychiatry (2)
(Formerly Law 452)

Allen, Ferster

Designed to (1) expose the lawyer to some of the constructs of dynamic psychiatry dealing with human personality and behavior, and to relate them to problems encountered in legal practice; (2) provide information—both psychiatric and legal—bearing upon such topics as mental illness and tort liability ("traumatic neurosis," malpractice, commission of torts by mentally ill persons); hospitalization of the mentally ill and mentally retarded; guardianship; ad hoc determinations of incompetency (testamentary, contractual, and donative capacity; capacity to marry, have custody of children; mental illness as a ground for divorce; eugenic sterilization); mental illness and the criminal law (psychiatric evaluations in criminal cases, determinations of competency to stand trial, criminal responsibility); and (3) examine the role of psychiatry in legal settings, including the effective use of the psychiatrist and psychologist as expert witness. (RP) (Spring—evening)

Ferster

487 Interdisciplinary Seminar on the Juvenile Court (2)
(Formerly Law 426)

Sociological, psychological, and psychiatric views on prevention, diagnosis, and treatment; analysis of statutes, court rules, and reported cases pertaining to delinquency, dependency, custody, and child abuse; emphasis on the role of the lawyer in this court. (RP) (Fall—evening)

OTHER RELATED COURSES

- 591 *Legislative Drafting*
 594 *Negligence Trial Techniques*
 595 *Forensic Medicine*

LAW, SCIENCE, AND TECHNOLOGY

- 491 **Science Policy Formulation (2)**
 (Formerly Law 410)

H. Green

Current or recent important governmental decisions in the area of science as they affect the interplay of various government and community interests; the role of law as a constraint, vehicle, or implement; the role of lawyers in the decision-making process. (RP) (Fall—evening)

- 492 **Seminar: Science and the Legal Process (2)**
 (Formerly Law 409)

H. Green

Reciprocal relationships between law and science; absorption of scientific concepts into substantive law through adjudication, legislation, and rule making; techniques and procedures used in handling, developing, and deciding scientific issues. (Spring—evening)

- 493 **Intergovernmental Aspects of Technological Change (2)**
 (Formerly Law 411)

Oppenheimer

Role of technology in breaking down political barriers and leading to intergovernmental measures to control or advance technological progress within the United States and on an international basis. Specific legal devices and institutions employed in intergovernmental handling of technological problems. (RP) (Spring—evening)

- 494 **Use and Control of Atomic Energy and Space Technology (2)**
 (Formerly Law 412)

H. Green

Problems resulting from revolutionary scientific developments of recent years. Impact of advanced technologies on the law and legal institutions. Laws and regulations relating to atomic energy and space including civilian uses, licensing, security, international, and patent considerations. (RP) (Summer 1968)

- 495 **Legal Protection against Technological Hazards (2)**
 (Formerly Law 414)

Dembling, J. Brown

The growth and development of law and legal institutions to protect society against the hazards inherent in new technologies with particular emphasis on the progress of reconciling the protection of the public with the desire for rapid progress. (RP) (Spring—day and evening)

OTHER RELATED COURSES

- 402 *Executive Function*
 412 *Food and Drug Law*
 413 *Public Policy and Mass Media*
 431 *Government Procurement Law*

- 503 *Natural Resources Law and Policy*
 505 *Intergovernmental Relations I*
 531 *International Law of Air and Space*
 532 *International Law of the Sea*

NATURAL RESOURCES LAW

501 **Land Development Law (3)**

J. Brown

Study of the various techniques relative to land development; the status of the Federal Government as landlord, vendor, and purchaser; the competitive private market as a form of planning in comparison to governmental planning programs; the functions of the lawyer in the modern real estate transaction involving land acquisition, licenses, codes and permits, development, construction, sale, and financing. Consideration of new forms and concepts of ownership, transportation programs as a part of land development planning, the migration of people and industry as a planning and control factor, and private and public "new town" developments. (Fall—day)

502 **Water Resources Law (3)**

Maloney

Introductory survey course in the law relating to water resources. The history and development of water rights systems in the United States, with comparative analysis of Eastern and Western water law, including trends toward modification of traditional doctrines; description of private and public rights to both consumptive and nonconsumptive uses; exploration of rights in land adjacent to water courses; identification of federal-state-local relationships, conflicts, and institutions; consideration of inter-basin domestic and international transfers; creation of new sources through desalination, weather management, and ground storage programs. (Summer 1968)

503 **Natural Resources Law and Policy (2)**
(Formerly Law 423)

Kratchman

Study of key legal doctrines and their development in the law of water, mining, and oil. Systematic analysis of natural resource problems such as government and private interactions, multiple use and priorities of resources, and security of property rights. Examination of alternatives in resource policy development, and impact on private and public actions. (RP) (Fall—evening)

504 **Formulation of Natural Resources Policy (2)**

Study of the way natural resources policy has been formulated; emphasis on engineering considerations, political aspects, and the social and economic forces bearing on this problem. Extensive consideration of the ongoing legislative process at the federal level; detailed examination of a number of actual problem areas, including Appalachia, the estuaries, watershed transferrals, demonstration cities, etc. (RP) (Spring—evening)

Oppenheimer

505 **Intergovernmental Relations I (2)**

Study of the constitutional powers and limitations of federal, state, and local governments in the United States in the light of current problems of governmental control; the federal system and the resultant municipal-state-federal allocation of authority and responsibility; the federal taxing, spending, proprietary public welfare, and treaty-making powers as related to intergovernmental programs and projects. (Fall—evening)

506 Intergovernmental Relations II (2)

J. Brown

Each student will make a case study of a current program which has been forced to deal with the problem of multi-government involvement, such as river basin development programs, metropolitan programs in transportation or sanitation, or other federal-state or federal-foreign government programs. (RP) (Spring—evening)

OTHER RELATED COURSES

- 403 *Economic Planning and the Law*
- 431 *Government Procurement Law*
- 491 *Science Policy Formulation*
- 492 *Seminar: Science and the Legal Process*
- 495 *Legal Protection against Technological Hazards*
- 532 *International Law of the Sea*
- 560 *Taxation—State and Local*
- 571 *Land Use Planning*
- 591 *Legislative Drafting*

PATENT AND TRADE REGULATION LAW**521 Patent Licensing and International and Comparative Patent Law (2)**

Kayton

(Formerly Law 368)

Fundamentals of exclusive and nonexclusive patent license contracts, express and implied. Problems of royalty calculations and negotiation. Relationship between licensor, licensee, and third parties. Analysis of licensee estoppel and its current status. Effect of patent invalidity on licensee obligations. Patent misuse and antitrust considerations affecting license validity and patent enforceability—tying arrangements, price restrictions, package licensing, grant-back arrangements. Survey of principal national patent systems. Treaties relating to patents. International Convention for the Protection of Industrial Property (patent and trademark treaty between 51 countries); history, analysis, application, administration. Current movements toward harmonization plans for multinational patents. Prerequisite: Law 359, or the equivalent in experience. (Not offered 1968-69)

525 Copyright Law (2)

Cary

(Formerly Law 311)

Historical background; formalities and essentials in securing a copyright; subject matter of copyright; remedies; international aspects of copyright under Berne Union, Universal Copyright Convention, Inter-American Convention; copyright licensing and performing right societies. (Spring—evening)

527 Advanced Topics in Patent Law (2)

Harris

(Formerly Law 468)

Licensing and protection of industrial property; uses and abuses of patents; governmental regulation; protection abroad; role of patents in business; economic and social functions of patents, trademarks, and copyrights. Prerequisite: Law 359. (RP) (Spring—evening)

529 Research in Patent, Trademark, and Copyright Law (2)
(Formerly Law 469)

Harris

Prerequisite: Law 417, 527, and related courses; and a B average. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Work must be completed within the semester and paper submitted not later than last day of classes. Graduate students may repeat this course once for credit with the approval of the Dean. (RP) (Fall and spring—as arranged)

Master of Laws candidates in the area of Patent and Trade Regulation Law who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

- 329 *Unfair Trade Practices*
- 330 *Federal Antitrust Laws*
- 359 *Patent Law*
- 362 *Patent Office Practice*
- 365 *Patent Trial and Appellate Practice*

OTHER RELATED COURSES

- 412 *Food and Drug Law*
- 425 *Economic Theory for Lawyers*
- 427 *Legal Aspects of International Business Transactions*
- 431 *Government Procurement Law*
- 491 *Science Policy Formulation*
- 492 *Seminar: Science and the Legal Process*
- 493 *Intergovernmental Aspects of Technological Change*
- 541 *European Common Market*
- 562 *Income Taxation of Foreign Business and Investment*

PUBLIC INTERNATIONAL AND COMPARATIVE LAW

531 International Law of Air and Space (2)
(Formerly Law 456)

Dembling

Study of the development of international law relating to the use of air space and outer space; the role of various intergovernmental and nongovernmental international organizations; consideration of special problems of liability resulting from space activities, space technology and arms control, and pollution and contamination of outer space. (RP) (Fall—evening)

Clingan

532 International Law of the Sea (2)
(Formerly Law 457)

International and domestic law affecting the allocation of authority over ocean space. Problems concerning internal waters, territorial seas, the high seas, contiguous zones, and the continental shelf; the impact of advances in ocean science technology on ocean resource law; freedom of the sea, maritime safety, and related subjects. This course is given in seminar format, and research papers are preferred; however, an end-of-course examination will be approved under special circumstances. (Spring—evening)

533 Legal Regulation of International Coercion (2) Mallison
(Formerly Law 455)

Process of legal decision in war and when expectations of violence are high—contemporary international law of war and coercive measures short of war such as limited naval blockade; legal aspects of modern methods of coercion—economic, political, psychological, and military; limited war and modes of preventing “escalation” to total war; regulation of hostilities; problems concerning atomic, bacteriological, and chemical weapons. (RP) (Fall—evening)

534 Legal Aspects of American Foreign Relations (2) Miller
(Formerly Law 454)

Legal and policy questions involved in the conduct of American foreign relations. Emphasis upon participation in such multinational organizations as the International Labor Organization, the Organization of American States, the Organization for Economic Cooperation and Development, and the North Atlantic Treaty Organization. Some attention to export controls, international measures for arms control, the American constitutional structure for the conduct of foreign affairs, and the role of law in foreign relations. Prerequisite: Law 212. (RP) (Fall—day)

535 Negotiation: Concepts and Techniques (2) Ramundo, Frank
(Formerly Law 445)

Role of the lawyer and policy maker (client) in private, intragovernmental, and international negotiations; negotiations in private practice and governmental operations; achieving consensus among contentious parties; negotiating techniques, including effective use of the “fallback”; gaming exercises in the actual conducting of negotiations with practical work in the preparation of claim letters, agency and national positions, and negotiating instructions. (RP) (Spring—evening; summer 1968)

536 Diplomatic and Consular Law and Practice (1) Mitchell
(Formerly Law 437)

Development of diplomatic and consular relations between nations; legal rights, privileges, functions, and immunities of diplomatic and consular personnel; extent of immunity from jurisdiction of foreign government missions and representatives; problems of taxation affecting foreign government missions and personnel. (Not offered 1968–69)

541 European Common Market (2) Ehrenhaft
(Formerly Law 421)

Analysis of treaty establishing European Economic Community; institutions of EEC and of member states and the internal law of member states as they affect doing business in EEC; series of problems arising out of establishing and operating business with and within EEC. Background in international law and antitrust law desirable. (RP) (Fall—evening)

542 Seminar: International Technical and Economic Assistance (2) Aufright
(Formerly Law 441)

Programs of technical and economic assistance for development overseas conducted by United States, United Nations, Organization of American States. Special attention to work being done in Latin America. Problems of law, policy, program, and administration. Evaluation of alternate operating techniques and results achieved by these programs. Open also to

qualified graduate students in the field of economics, international affairs, and political science. (RP) (Fall—evening)

546 Soviet Law (2)

(Formerly Law 473)

Concept of "socialist legality"; legal relationship of individual to state and other participants in Soviet society; role of Party in Soviet legal system; Soviet philosophy of law; state (constitutional) law; Soviet federalism; governmental apparatus, rights and obligations of citizenship; criminal law; property law; labor law; selected topics in civil law and procedure; international law. (Fall—evening)

Ramundo

547 Chinese Law (2)

(Formerly Law 474)

Emphasis on the legal system of Communist China; analysis of the constitutional law of the People's Republic of China, including general principles, state structure, and rights and duties of citizens; a brief survey of the administration of justice—courts, procuratorates, and lawyers; marriage law; land law; counterrevolutionary act and other criminal statutes; principles of civil law; communist Chinese concept of international law. (Spring—evening)

Hsia

548 Law of the Near East (2)

(Formerly Law 449)

Law of the Arab countries, including basic principles of Islamic law; analysis of the present day codes, and investigation of the Western influences on laws of Arab countries. (Not offered 1968-69)

Liebesny

Master of Laws candidates in the area of Public International and Comparative Law who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

302 Admiralty

303 International Law and World Order

307 Comparative Law

309 Conflict of Laws

391 United Nations Law and World Order

OTHER RELATED COURSES

427 Legal Aspects of International Business Transactions

494 Use and Control of Atomic Energy and Space Technology

505 Intergovernmental Relations I

506 Intergovernmental Relations II

521 Patent Licensing and International and Comparative Patent Law

562 Income Taxation of Foreign Business and Investment

TAXATION

- 551 Taxation—Partnerships and Subchapter S (2)** Clark
(Formerly Law 482)
Income tax problems of partnerships and tax-option corporations (Sub-chapters K and S of the Internal Revenue Code of 1954). Prerequisite: Law 336. (Spring—evening)
- 553 Seminar: Estate Planning (2)** Speiller
(Formerly Law 420)
Group study of the effective disposition of wealth, inter vivos and testa-mentary gifts, conservation for owner's future use, use of insurance, tax and administrative problems, business interests, pension and profit-sharing arrangements. Prerequisite: Law 338. (RP) (Spring—evening; sum-mer 1968)
- 555 Taxation—Special Corporation Problems (2)** Schoeneman
(Formerly Law 484)
Detailed study of the principal Federal tax benefits of the corporate form of doing business. Consideration of problems involved in the tax planning of the corporate structure and corporate operation, including the tax defini-tion of a corporation, the special deductions available to corporate tax-payers, compensating the corporate executive and employee, the debt-equity question, the accumulated earnings tax, the personal holding company tax, multiple corporations, and consolidated returns. Survey of the types of corporations receiving special treatment under the Internal Revenue Code, such as financial institutions, the real estate investment trust, regulated investment companies, cooperatives, and the small business corporation. (Fall—evening)
- 556 Seminar: Foundations and Other Charitable Organizations (2)** Weaver
The special role of organized philanthropy. Legal problems peculiar to foundations and other charitable organizations viewed from the perspective of donors, organization officers, beneficiaries, and the public. (RP) (Spring—day)
- 557 Taxation—Exempt Organizations (2)** Treusch
(Formerly Law 483)
Tax exempt organizations—policy and practice. Preferred tax treatment of selected organizations and of gifts to them. Statute and regulations vs. actual IRS practice; legislative origins, judicial interpretations, and policy considerations. Tests of qualification, disqualification, and limited tax preference. Mechanics of securing and retaining exemptions, qualified ex-emption, unrelated business income vs. investment income. Denial or loss of exemption; tax treatment of nonexempt, nonprofit organizations. Judi-cial and legislative treatment of losses of tax exempt status. Prerequisite: Law 336. (Fall—evening)
- 559 Taxation—Oil and Gas (2)** Hambrick
(Formerly Law 480)
Application of federal income tax to producing segment of oil and gas in-dustry. Classification of interests: treatment of exploration and develop-ment expenditures. Depletion allowance and concept of "economic inter-ests." Sales and "ABC" transactions. Organization problems. Prerequi-site: Law 336. (Spring—evening)

560 Taxation—State and Local (2)
(Formerly Law 481)

Patterson

Taxation by state and local governments: property taxation problems, sales and use taxes, income taxation. Limitations on taxation of interstate commerce. Prerequisite: Law 336. (Spring—evening)

562 Income Taxation of Foreign Business and Investment (2)
(Formerly Law 490)

Hambrick

The provisions and policies of the Federal Income Tax law applicable to foreign income, including considerations affecting the choice of methods of engaging in foreign business and investment, treatment of controlled foreign corporations, allocation of income in foreign commerce, credit for foreign taxes, principles and trends of U.S. tax treaties. (Not offered 1968–69)

564 Seminar: Special Problems of Tax Policy (2)
(Formerly Law 485)

Barlow, Ellicott

Intensive study of selected aspects of the tax structure with primary attention given to the federal income tax. Problem areas are reviewed primarily from the standpoint of tax policy, including legal, economic, social, and practical considerations. Alternative solutions, including current legislative proposals, are examined. Prerequisite: Law 336, 337. (RP) (Fall—evening)

567 Seminar: Tax Practice and Procedure (2)
(Formerly Law 478)

Elliott, Klayman

Review of the major areas of tax practice, including organization of the Internal Revenue Service, legislation, administrative regulations, tax planning, tax rulings, tax audit, settlement procedures, claims for refund, tax collection processes, criminal tax practice, and ethical problems in tax practice. Preparation of various documents is required. Prerequisite: Law 336. (RP) (Fall—evening)

568 Seminar: Federal Tax Litigation (2)
(Formerly Law 479)

Treich

Choice of forum. Conduct of civil tax cases: trial practice in the Tax Court, the District Courts, and the Court of Claims; appeal practice in the Courts of Appeals and on certiorari to the Supreme Court; analysis and drafting of pleadings, motions, and briefs; oral argument; settlements and stipulations of fact. Comparative responsibilities and procedures of IRS and of Justice for litigation control. Prerequisite: Law 567. (RP) (Spring—evening)

Master of Laws candidates in the area of Taxation who have not taken the following courses or their equivalent as part of a Juris Doctor or Bachelor of Laws program should include them in their Master's program.

336 Taxation—Federal Income

337 Taxation—Corporate

338 Taxation—Federal Estate and Gift

351 Law and Accounting

OTHER RELATED COURSES

403 Economic Planning and the Law

404 Securities Regulation

424 *Business Planning*427 *Legal Aspects of International Business Transactions*

URBAN LEGAL STUDIES

With the exception of Law 571, descriptions for courses in this area appear elsewhere in "Advanced Courses."

451 *Federal Programs for Urban Poverty* (2)453 *Community Organizations* (2)458 *Housing the Poor* (2)459 *Problems of the Consumer* (2)461 *Social Welfare Legislation and Administration* (2)501 *Land Development Law* (3)505 *Intergovernmental Relations I* (2)506 *Intergovernmental Relations II* (2)560 *Taxation State and Local* (2)571 *Land Use Planning* (2)

Nutting

(Formerly Law 495)

Selected problems in urban redevelopment and housing, with particular emphasis on programs under current federal and state legislation. (RP)

(Not offered 1968-69)

Master of Laws candidates in the area of Urban Legal Studies who have not taken the following course or its equivalent as part of a Juris Doctor or Bachelor of Laws program should include it in their Master's program.

349 *Local Government Law*

OTHER RELATED COURSES

407 *Seminar: Regulation of Transportation I*408 *Seminar: Regulation of Transportation II*460 *Current Problems in Civil Rights*462 *Family Law of the Poor*475 *Law and Criminology I: Search for the Causes of Criminal Behavior*476 *Law and Criminology II: Society's Responses to the Criminal Offender*477 *The Police and the Community*487 *Interdisciplinary Seminar on the Juvenile Court*504 *Formulation of Natural Resources Policy*

OTHER ADVANCED COURSES

591 *Legislative Drafting* (2)

Zinn

(Formerly Law 345)

Advanced instruction and practice in legislative drafting. (RP) (Fall—
evening)

592 Seminar: Constitutional Law (2)

Dixon

(Formerly Law 408)

Group study of contemporary problems in constitutional law; process of constitutional litigation; problems of effectuating constitutional guarantees. (RP) (Spring—day)

593 Seminar: American Legal History (2)

D. Green

(Formerly Law 407)

From the outbreak of the Revolution at Lexington and Concord to the death of Chief Justice Marshall. An examination of men, events, and movements that have particular significance in the unfolding of our laws and legal institutions in this formative period of our national life, including a critical examination of some major historical work such as Beveridge's *Life of Marshall*. (RP) (Spring—evening)

594 Negligence Trial Techniques (2)

Goldsborough

(Formerly Law 382)

Open to undergraduates with 56 hours or more, including Law 207-8, 218, 232; and to graduate students and young lawyers without experience in the trial of a negligence case. Recent developments in the principal areas of negligence law; extension of fundamental concepts of damages and principal aspects of settling negligence case; preparation and trial of negligence case; contemporary liability insurance policy and its impact upon tort litigation; literature of tort law. (RP) (Fall and spring—evening)

595 Forensic Medicine (2)

Sharpe, Head

(Formerly Law 372)

Examples drawn from the range of problems arising when the professional interests of lawyers and physicians overlap. Problem contexts include malpractice, personal injury litigation, licensure and discipline, ethics and economics, hospitals and other institutions of practice, and compelled treatment. Open to third-year medical students. (Fall—day and evening)

596 Seminar: Contracts (2)

Freedman

Advanced problems in contracts, such as the relationship of contract and tort (substantively, procedurally, and in measuring damages), Article II of the Uniform Commercial Code, product liability, commercial frustration, unconscionability, remedies, and anticipatory breach. (RP) (Not offered 1968-69)

Staff

598 Research in Public Law (2)*(Formerly Law 471)*

Registration limited to students with at least a B average who have had a seminar or comparable course in field of proposed research. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Work must be completed within the semester and paper submitted not later than last day of classes. Students may repeat this course once for credit with the approval of the Dean. (RP) (Fall and spring—as arranged)

599-600 Thesis (2-2)*(Replaces Law 499 (4))*

Students must register for two successive semesters. as arranged)

(Academic year—

SPECIAL PROGRAMS IN RESEARCH AND INSTRUCTION

GOVERNMENT CONTRACTS PROGRAM

Director John Cibinic, Jr.

Assistant Director Gilbert J. Ginsburg

A COMPREHENSIVE GOVERNMENT CONTRACTS PROGRAM provides continuing instruction for industry and government personnel in this field and a program of courses leading to the Master of Laws degree in Government Procurement Law. The program includes (1) short seminars; (2) two-week courses in advanced problems in the field; (3) an annual institute treating a problem of contemporary importance; (4) an annual conference in a major area; (5) compilation of materials for use in current courses; (6) publication of a series of monographs treating special problems in the field; and (7) special research projects.

COMPUTERS-IN-LAW INSTITUTE

Co-directors Irving Kayton, John C. Lyons

The Computers-in-Law Institute is coping with the problems posed by the advent of computers in the practice and theory of law. Projects are underway for the purpose of advancing the state of knowledge and pedagogical techniques connected with the law-computer interface. Major areas of current activity and interest include computerized legal information retrieval systems, automatic composition of legal publications, systems studies oriented toward preserving the privacy of the individual in connection with large computerized data centers, computerization of land records and mechanization of routine court administration, and the application of computer techniques to a generalized reapportionment procedure. Other areas of interest include the impact of the computer on taxes and telecommunications. Current educational programs include the annual "Computers and Tax Conference."

THE INSTITUTE OF LAW, PSYCHIATRY, AND CRIMINOLOGY

Director Richard C. Allen
Co-director Leon Yochelson

The Institute of Law, Psychiatry, and Criminology draws upon the insights and techniques of the behavioral sciences in areas of mutual concern to law and its sister disciplines, with special emphasis in the fields of forensic psychiatry and criminology.

LAW, SCIENCE, AND TECHNOLOGY PROGRAM

Director Harold P. Green

The Law, Science, and Technology Program deals with the reciprocal relationships between law and science, providing courses, seminars, research studies, and publications to equip the legal profession to deal more effectively with the social, economic, political, and legal consequences of the nation's present massive commitment to scientific progress.

THE PATENT, TRADEMARK, AND COPYRIGHT RESEARCH INSTITUTE

Director Louis J. Harris

The Patent, Trademark, and Copyright Research Institute is engaged in gathering and disseminating knowledge regarding the principles, facts, and practical operations of the patent, trademark, copyright, and related systems of laws of the United States and other countries. The Institute journal, *IDEA*, is published five times yearly.



THE GEORGE WASHINGTON LAW ASSOCIATION

THE GEORGE WASHINGTON LAW ASSOCIATION was founded in 1912 and has been affiliated with the General Alumni Association since 1926. Its purposes as stated in the constitution are to promote high standards of legal education, to keep the alumni of the school in close touch with one another, especially with members of their own classes, to gather and publish at intervals information as to the whereabouts and activities of these alumni, and to further the interests of the school.

Eligible members are those who have matriculated in the school or National University and have left in good standing, and any member or former member of the faculty of the school. Active members are those eligible members who are current contributors to the Law Annual Support program of the University and life members of the George Washington Law Association.

The Association plans publication periodically of the Law Alumni Directory. Law Alumni are urged to keep the Alumni Office informed of their whereabouts so that directory information can be kept up to date.

The Law Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1967-68

President.—Glen A. Wilkinson, J.D. 1938; 1616 H Street, N.W., Washington, D.C. 20006

First Vice President.—Oliver Gasch, LL.B. 1932; U.S. Court House, Washington, D.C. 20001

Second Vice President.—Joseph L. Brand, J.D. 1963; 1200 17th Street, N.W., Washington, D.C. 20036

Third Vice President.—Philip F. Herrick, LL.B. 1933, LL.M. 1936; 806 15th Street, N.W., The Shoreham Building, Washington, D.C. 20005.

Secretary.—Clarence T. Kipps, Jr., J.D. 1953; Miller & Chevalier, 1700 Pennsylvania Avenue, N.W., Washington, D.C. 20006.

Treasurer.—Alexander L. Stevas, B.A. 1949, LL.B. 1951; 1970 Rockingham Street, McLean, Va. 22101

Executive Committee:
Joel Barlow, LL.B. 1935; Union Trust Building, Washington, D.C. 20005
Michael P. Bentzen, LL.B. 1964; Union Trust Building, Washington, D.C. 20005

Henry A. Berliner, Jr., LL.B. 1964; 1100 Connecticut Avenue, N.W., Washington, D.C. 20036

Alvin Capp, B.A. 1961, LL.B. 1964; 500 Northeast 3d Avenue, Fort Lauderdale, Fla. 33301

Fred H. Daly, LL.B. 1966; 2866 South Buchanan Street, Arlington, Va. 22206

Joseph A. DeGrandi, M.S. 1950, LL.B. 1952; 1815 H Street, N.W., Washington, D.C. 20006

Joseph A. DePaul, LL.B. 1950; 7100 Baltimore Avenue, College Park, Md. 20740

- Lloyd Fletcher, J.D. 1939; 4851 Maury Lane, Alexandria, Va. 22304
- Elizabeth S. Freret, LL.B. 1950; 1 Farragut Square South, Washington, D.C. 20006
- Harold L. George, LL.B. (Nat'l) 1920; 719 North Oakhurst Drive, Beverly Hills, Calif. 90210
- Philip A. Gagan, B.A. 1953, J.D. 1959; 2401 H Street, N.W., Washington, D.C. 20037
- Marion Edwyn Harrison, LL.B. 1954, LL.M. 1959; 1750 Pennsylvania Avenue, N.W., Washington, D.C. 20006
- William S. Hochman, J.D. 1962; Pillsbury, Madison & Sutro, 225 Bush Street, San Francisco, Calif. 94104
- C. Timothy Hopkins, LL.B. 1963; Idaho First National Bank Building, Idaho Falls, Idaho 83401
- Joseph D. Hughes, LL.B. 1934; 525 William Penn Place, Pittsburgh, Pa. 15219
- Ronald E. Madsen, Sr., J.D. 1955; Southern Building, Washington, D.C. 20005
- Milton E. Mermelstein, B.A. 1930, LL.B. 1931; 445 Park Avenue, New York, N.Y. 10022
- Katsugo Miho, LL.B. 1953; Fong, Miho, Choy & Robinson, 195 South King Street, Honolulu, Hawaii 96813
- Milan C. Miskovsky, LL.B. 1956; Department of the Treasury, 15th Street and Pennsylvania Avenue, N.W., Washington, D.C. 20220
- Donald L. Mooers, LL.B. 1963; 1921 Eye Street, N.W., Washington, D.C. 20006
- Bernard I. Nordlinger, B.A. 1929, LL.B. 1933; Southern Building, Washington, D.C. 20005
- Kenneth W. Parkinson, B.A. 1950, LL.B. 1952; Tower Building, Washington, D.C. 20005
- Nad A. Peterson, B.A. 1950, J.D. 1953; The Fluor Corporation, Ltd., 2500 South Atlantic Boulevard, Los Angeles, Calif. 90022
- B.R. Pravel, J.D. 1951; 500 Jefferson Building, Houston, Texas 77002
- Gordon J. Quist, J.D. 1962; 465 Old Kent Building, Grand Rapids, Mich. 49502
- James Robertson, LL.B. 1965; 5222 Roosevelt Street, Bethesda, Md. 20014
- Ethan Stroud, LL.M. 1956; 1401 Main Street, Dallas, Texas 75202
- Sidney Struble, LL.B. (Nat'l) 1917, LL.M. (Nat'l) 1919; 533 Seventh Street, Brooklyn, N.Y. 11215
- Gary L. Theurer, LL.B. 1954; 7404 Bybrook Lane, Chevy Chase, Md. 20015
- Betty Ann Thompson, B.A. 1946, LL.B. 1948; 2045 15th Street North, Arlington, Va. 22201
- William C. Thornton, LL.B. 1961; 227 Hill Street, Reno, Nev. 89501
- Kirby L. Turnage, Jr., J.D. 1964; 434 Trust Company of Georgia Building, Atlanta, Ga. 30303
- Sterry R. Waterman, Law (1926); 12 Highland Avenue, St. Johnsbury, Vt. 15819
- George F. Wilsey, J.D. 1958; 275 4th Street North, St. Petersburg, Fla. 33701
- James O. Wright, LL.B. 1938; P.O. Box 1966, Detroit, Mich. 48235
- Samuel J. L'Hommedieu, Jr., ex officio, LL.B. 1951, LL.M. 1952; 1627 K Street, N.W., Washington, D.C. 20006.



THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "that persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages thereof, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was

located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences (undergraduate); the Graduate School of Arts and Sciences; the professional schools, which include the National Law Center and the schools of Medicine, Engineering and Applied Science, Education, Government and Business Administration, Public and International Affairs; the College of General Studies; the Division of University Students; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

LOCATION

The George Washington University is in downtown Washington, four blocks west of the White House. Within a few blocks are the buildings housing the offices of many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor. Also readily accessible are the Capitol, the Library of Congress, the National Archives, and the Supreme Court and other federal courts.

THE BOARD OF TRUSTEES 1967-68

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 John W. Thompson, Jr., B.A., *Assistant Secretary*

*Edgar Robey Baker, B.A.
 George A. Butler, LL.B.

*Nominated by the Alumni.

- Mortimer Maxwell Caplin, B.S., LL.B., J.S.D., LL.D.
 Leonard Carmichael, Ph.D., Sc.D., LL.D., Litt.D., L.H.D., D.C.L.
 Eugene Cassin Carusi, M.A., J.D.
 Miss Jacqueline Cochran, L.H.D., LL.D., Sc.D.
 *Donald C. Cook, B.A., M.B.A., J.D., LL.M., L.H.D., LL.D.
 *Harry Filmore Dowling, B.A., M.D., Sc.D.
 Harry F. Duncan
 Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President of the University, ex officio*
 Newell Windom Ellison, B.A., LL.B., LL.D.
 Mrs. Katharine Graham, B.A.
 Melville Bell Grosvenor, B.S., Sc.D., LL.D.
 Brooks Hays, B.A., LL.B., LL.D., L.H.D., D.C.L., D.D., HH.D.
 John Edgar Hoover, LL.M., LL.D., Sc.D., D.C.L.
 Joseph D. Hughes, B.S., LL.B., LL.M., LL.D.
 Lewellyn A. Jennings
 David Matthew Kennedy, LL.B., B.A., LL.D.
 Franklin Jerome Lunding, LL.B., LL.D.
 Jeremiah Milbank, Jr., B.A., M.B.A.
 Godfrey Leon Munter, B.A., LL.B., LL.D.
 *Robert Daniel Murphy, LL.B., LL.M., LL.D.
 Thornton W. Owen, B.S. in C.E., B.A.
 Sidney Dillon Ripley II, Ph.D., L.H.D., Sc.D.
 Carleton D. Smith
 Charles E. Smith
 Lewis L. Strauss, Sc.D., LL.D., L.H.D.
 John W. Warner, B.S., LL.B.
 *John Johnston Wilson, LL.B.
 Watson W. Wise, Ph.B.
 Stephen Russell Woodzell, B.S. in E.E.
 *James Otis Wright, B.S., LL.B.
 Eugene M. Zuckert, B.A., LL.B., LL.D., Sc.D.

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- Walter Maximillian Bastian, LL.B., LL.D.
 Charles Carroll Glover, Jr., M.A., LL.B., LL.D.
 Ulysses S. Grant III, B.S., Graduate United States Engineers School, LL.D., Sc.D., L.H.D.
 Alfred Henry Lawson, LL.B., LL.D.
 John Keown McKee
 Benjamin Mosby McKelway, Litt.D.
 Walter George Ross, LL.D.
 Sidney William Souers, B.A., LL.D.
 Alexander Wetmore, Ph.D., Sc.D.
 Charles Stanley White, M.D., Sc.D.
 Lloyd Bennett Wilson

* Nominated by the Alumni.

OFFICERS OF ADMINISTRATION

THE UNIVERSITY

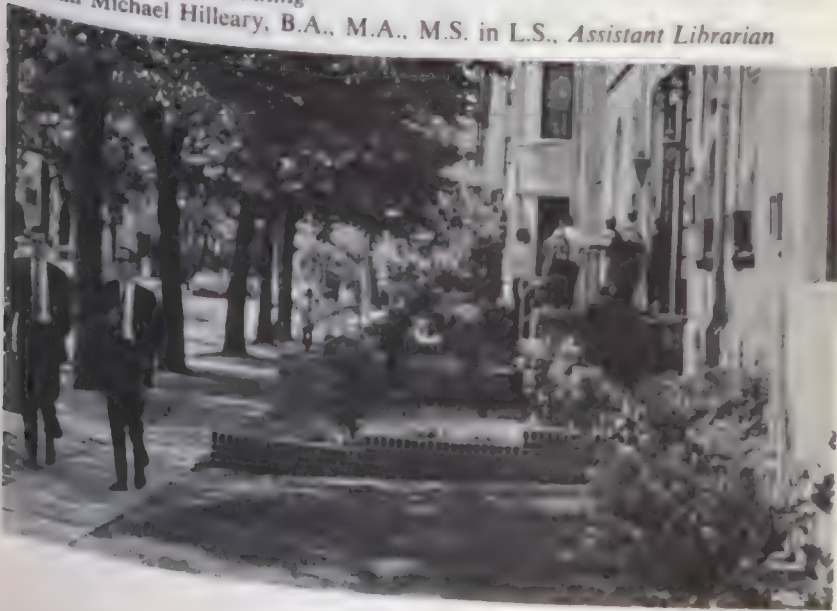
Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President*
 Harold Frederick Bright, Ph.D., *Vice President for Academic Affairs*
 Henry William Herzog, B.S., *Vice President and Treasurer*
 Warren Gould, M.A., *Vice President for Resources*
 William David Johnson, B.S., *Comptroller; Director of the Budget*
 Louis Harkey Mayo, B.S., J.S.D., *Vice President for Advanced Policy Studies*
 William Parkhurst Smith, Jr., B.A., M.B.A., *Vice President for Student Affairs*
 Frederick Russell Houser, M.A., *Registrar*
 Joseph Young Ruth, B.A., *Director of Admissions*

THE NATIONAL LAW CENTER

Robert Kramer, B.A., LL.B., *Dean of the National Law Center*
 William Wallace Kirkpatrick, B.A., LL.B., *Associate Dean of the National Law Center*
 Ralph Clarke Nash, Jr., B.A., J.D., *Associate Dean of the National Law Center, for Graduate Studies, Research, and Projects*
 Edward Andrew Potts, B.A., LL.B., *Associate Dean of the National Law Center*

THE LAW LIBRARY

Hugh Yancey Bernard, Jr., B.A., B.S. in L.S., J.D., *Librarian*
 Robert Gordon Bidwell, B.S., LL.B., M.S. in L.S., *Assistant Librarian for Management and Planning*
 William Michael Hilleary, B.A., M.A., M.S. in L.S., *Assistant Librarian*



THE NATIONAL LAW CENTER

The Faculty and Staff of Instruction*

EMERITI

Cloyd Heck Marvin, *President Emeritus*

B.A. 1915, M.A. 1916, University of Southern California; M.A. 1917, Ph.D. 1919, Harvard University; LL.D. 1923, University of New Mexico; Ph.D. 1953, Nihon University, Japan.
Doctor honoris causa of The George Washington University, 1959

Carville Dickinson Benson, *Professor Emeritus of Law*

B.A. 1920, Johns Hopkins University; LL.B. 1923, S.J.D. 1926, Harvard University

Oswald Symister Colclough, *Professor Emeritus of Law; Dean of Faculties Emeritus; Director Emeritus of the Patent, Trademark, and Copyright Research Institute*

B.S. 1920, U.S. Naval Academy; LL.B. 1935, Sc.D. 1961, George Washington University; LL.D. 1946; Muhlenberg College; LL.D. 1958, Dickinson College

Charles Sager Collier, *Professor Emeritus of Law*

B.A. 1911, LL.B. 1915, S.J.D. 1932, Harvard University

Robert McKinney Cooper, *Professor Emeritus of Law*

B.A. 1929, West Virginia University; Ph.M. 1931, University of Wisconsin; J.D. 1934, University of Michigan

George Bowdoin Craighill, *Professor Emeritus of Law*

B.A. 1903, University of the South; LL.B. 1906, Georgetown University

James Forrester Davison, *Professor Emeritus of Law, in Residence*

B.A. 1921, LL.B. 1923, Dalhousie University, Canada; LL.M. 1924, S.J.D. 1929, Harvard University

William Thomas Fryer, *Professor Emeritus of Law*

B.A. 1922, LL.B. 1924, George Washington University; J.D. 1925, Yale University

James Oliver Murdock, *Professor Emeritus of Law*

Ph.B. 1916, University of Chicago; LL.B. 1924, Harvard University

Alvin LeRoy Newmyer, *Professor Emeritus of Law*

LL.B. 1906, George Washington University

ACTIVE

Jeffrey Marshall Albert, *Associate Professor of Law*

B.A. 1956, Princeton University; LL.B. 1959, Harvard University; LL.M. 1962, New York University

Richard Chester Allen, *Professor of Law; Director of the Institute of Law, Psychiatry, and Criminology*

B.A. 1948, LL.B. 1950, Washington University; LL.M. 1963, University of Michigan

Hans Aufrecht, *Professorial Lecturer in Law*

Ph.D. 1926, D.J.S. 1937, University of Vienna, Austria

John Banzhaf III, *Associate Professor of Law*

B.S. in E.E. 1962, Massachusetts Institute of Technology; LL.B. 1965, Columbia University

* Professors, Adjunct Professors, Associate Professors, Assistant Professors, and the Librarian of the Law Library constitute the Faculty of the National Law Center. The President of the University, the Vice President for Academic Affairs, the Registrar of the University, and the Director of Admissions of the University are ex officio members of the Faculty.

Eugene Norman Barkin, *Professorial Lecturer in Law*

B.A. 1940, University of Scranton; LL.B. 1943, Dickinson School of Law

Joel Barlow, *Professorial Lecturer in Law*

B.A. 1929, Alma College; LL.B. 1935, George Washington University; LL.D. 1935, Norwich University

Jerome Aure Barron, *Professor of Law

B.A. 1955, Tufts University; LL.B. 1958, Yale University; LL.M. 1960, George Washington University

Florian Bartosic, *Professorial Lecturer in Law*

B.A. 1948, Pontifical College Josephinum; B.C.L. 1956, College of William and Mary; LL.M. 1957, Yale University

Edward Abbot Beard, *Professorial Lecturer in Law*

LL.B. 1939, Georgetown University; Judge, District of Columbia Court of General Sessions

Hugh Yancey Bernard, Jr., *Associate Professor of Law; Librarian of the Law Library*

B.A. 1941, University of Georgia; B.S. in L.S. 1947, Columbia University; J.D. 1961, George Washington University

James Milton Brown, *Professor of Law*

B.A. 1943, University of Illinois; LL.B. 1963, University of Florida

Thomas Hayward Brown, *Professorial Lecturer in Law*

Member of the bar of the District of Columbia

Charles Kent Carlson, *Assistant Professor of Law*

B.A. 1964, LL.B. 1967, University of Washington

George Davis Cary, *Professorial Lecturer in Law*

B.S. 1932, University of Pennsylvania; LL.B. 1938, George Washington University; LL.M. 1942, Georgetown University

John Cibinic, Jr., *Professor of Law; Director of the Government Contracts Program*

B.A. 1956, University of Pittsburgh; J.D. 1960, George Washington University

Reuben Clark, Jr., *Professorial Lecturer in Law*

B.A. 1943, LL.B. 1948, Yale University

Thomas Akroyd Clingan, Jr., *Professor of Law*

B.S. 1950, U.S. Coast Guard Academy; J.D. 1963, George Washington University

Manuel Frederick Cohen, *Professorial Lecturer in Law*

B.S. 1933, Brooklyn College; LL.B. 1936, Brooklyn Law School

Sheldon Stanley Cohen, *Professorial Lecturer in Law*

B.A. in Govt. 1950, J.D. 1952, George Washington University; C.P.A. 1952, State of Maryland

Marcus Cohn, *Professorial Lecturer in Law*

B.A. 1935, J.D. 1938, University of Chicago; LL.M. 1940, Harvard University

Thomas Francis Courtless, Jr., *Associate Professor of Law and Sociology*

B.A. 1955, Pennsylvania State University; M.A. 1960, Ph.D. 1966, University of Maryland

Hugh Baker Cox, *Professorial Lecturer in Law*

B.A. 1926, University of Nebraska; B.A. 1929, B.C.L. 1930, Oxford University, England

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B.A. 1934, M.A. 1955, Ph.D. 1961, University of California, Los Angeles

Paul Gerald Dembling, *Professorial Lecturer in Law*

B.A. 1940, M.A. 1942, Rutgers, the State University; J.D. 1951, George Washington University

Robert Galloway Dixon, Jr., *Professor of Law*

B.A. 1943, Ph.D. 1947, Syracuse University; LL.B. 1956, George Washington University

James Francis Doherty, *Professorial Lecturer in Law*

B.A. 1953, Catholic University of America; LL.B. 1957, Georgetown University

Justin Lincoln Edgerton, *Professorial Lecturer in Law*

B.A. 1929, LL.B. 1931, George Washington University

Peter David Ehrenhaft, *Associate Professorial Lecturer in Law*

B.A. 1954, LL.B., M.I.A. 1957, Columbia University

John Alfred Eichler, *Associate Professorial Lecturer in Law*

B.S. 1957, University of Maryland; J.D. 1962, George Washington University; LL.M. 1964, Harvard University

* On sabbatical leave fall semester 1968-69.

- John LeMoyne Ellicott, *Professorial Lecturer in Law*
B.A. 1951, Princeton University; LL.B. 1954, Harvard University
- Robert Harold Elliott, Jr., *Professorial Lecturer in Law*
B.S. 1955, University of Kansas; J.D. 1958, University of Michigan
- Pasquale Joseph Federico, *Professorial Lecturer in Law*
B.S. 1923, Case Institute of Technology; M.A. 1925, George Washington University; LL.B. 1932, American University
- Elyce Zenoff Ferster, *Associate Professor of Law*
B.S. 1951, University of Wisconsin; LL.B. 1954, Northwestern University
- Richard Asher Frank, *Assistant Professorial Lecturer in Law*
B.A. 1958, LL.B. 1962, Harvard University
- Monroe Henry Freedman, *Professor of Law*
B.A. 1952, LL.B. 1954, LL.M. 1956, Harvard University
- Gilbert Jerome Ginsburg, *Associate Professor of Law; Assistant Director of the Government Contracts Program*
B.A. 1954, B.A. in Law 1955, J.D. 1957, University of Chicago
- Philip Milton Glick, *Professorial Lecturer in Law*
Ph.B. 1928, J.D. 1930, University of Chicago
- Samuel Vahram Goekjian, *Professorial Lecturer in Law*
B.A. 1952, Syracuse University; LL.B. 1957, Harvard University
- George Joseph Goldsborough, *Professorial Lecturer in Law*
B.S. 1947, U.S. Military Academy; J.D. 1950, George Washington University
- William Wolcott Goodrich, *Associate Professorial Lecturer in Law*
LL.B. 1938, University of Texas
- David Crittenden Green, *Professor of Law*
B.A. 1948, Harvard University; LL.B. 1951, University of Virginia
- Harold Paul Green, *Professor of Law; Director of the Law, Science, and Technology Program*
B.A. 1942, J.D. 1948, University of Chicago
- Jackson Reid Hambrick, *Professor of Law*
B.A. 1938, Wofford College; LL.B. 1942, Duke University
- Louis James Harris, *Professor of Law; Director of the Patent, Trademark, and Copyright Research Institute*
B.A. 1932, Cornell University; LL.B. 1939, S.J.D. 1942, Brooklyn Law School; LL.M. 1948, George Washington University
- Murdock Head, *Professor of Medical and Public Affairs*
D.D.S. 1947, University of Louisville; M.D. 1953, University of Vermont; LL.B. 1958, George Washington University
- Philip Field Herrick, *Professorial Lecturer in Law*
B.A. 1929, Williams College; LL.B. 1933, LL.M. 1936, George Washington University
- James Daniel Hill, *Associate Professorial Lecturer in Law*
B.A. 1936, J.D. 1938, University of Iowa
- Thomas Willard Holland, *Professorial Lecturer in Law*
B.A. 1923, University of Michigan; LL.B. 1934, Columbia University; Ph.D. 1939, University of Wisconsin
- Tao-tai Hsia, *Professorial Lecturer in Law*
LL.B. 1945, National Chengchi University, China; LL.M. 1950, J.S.D. 1952, Yale University
- John Wingfield Jackson, *Adjunct Professor of Law*
B.S. 1928, University of Pennsylvania; LL.B. 1932, George Washington University
- Alan Hirsh Kaplan, *Associate Professorial Lecturer in Law*
B.A. 1951, LL.M. 1957, New York University; LL.B. 1954, Harvard University
- Irving Kayton, *Professor of Law; Co-director of the Computers-in-Law Institute; Director of the Patent Law Program*
B.A. 1951, Cornell University; LL.B. 1957, New York University; LL.M. 1964, J.S.D. 1967, Columbia University
- John Alexander Kendrick, *Professorial Lecturer in Law*
B.A. 1942, LL.B. 1943, George Washington University
- William Wallace Kirkpatrick, *Professor of Law; Associate Dean of the National Law Center*
B.A. 1934, LL.B. 1938, Harvard University

- Robert Alan Klayman, *Associate Professorial Lecturer in Law*
B.S. 1951, LL.B. 1954, West Virginia University
- Vincent Kleinfeld, *Associate Professorial Lecturer in Law*
LL.B. 1929, Columbia University
- Robert Kramer, *Professor of Law; Dean of the National Law Center*
B.A. 1935, LL.B. 1938, Harvard University
- Jack Kratchman, *Assistant Professorial Lecturer in Law*
B.S. 1948, City College, New York; M.S. 1952, New York University; LL.B. 1964, George Washington University
- *Roger Stroock Kuhn, *Associate Professor of Law*
B.A. 1948, Harvard University; LL.B. 1951, Columbia University
- Herbert Joseph Liebesny, *Professorial Lecturer in Law*
J.D. 1935, University of Vienna, Austria
- William Thomas Mallison, Jr., *Professor of Law*
B.A. 1940, University of Washington; LL.B. 1948, Vanderbilt University; J.S.D. 1967, Yale University
- †Henry Girard Manne, *Professor of Law*
B.A. 1950, Vanderbilt University; J.D. 1952, University of Chicago; LL.M. 1953, J.S.D. 1966, Yale University
- Lee Robert Marks, *Assistant Professorial Lecturer in Law*
B.A. 1957, University of Michigan; LL.B. 1960, Harvard University
- Louis Harkey Mayo, *Professor of Law; Vice President for Advanced Policy Studies*
B.S. 1940, U.S. Naval Academy; LL.B. 1949, University of Virginia; J.S.D. 1953, Yale University
- John Albert McIntire, *Professorial Lecturer in Law*
B.A. 1929, LL.D. 1954, Wittenberg College; LL.B. 1931, University of Cincinnati
- Leroy Sorenson Merrifield, *Professor of Law*
B.A. 1938, LL.B. 1941, University of Minnesota; M.P.A. 1942, S.J.D. 1956, Harvard University
- Arthur Selwyn Miller, *Professor of Law*
B.A. 1938, Willamette University; LL.B. 1949, Stanford University; J.S.D. 1959, Yale University
- Milton Mitchell, *Assistant Professorial Lecturer in Law*
LL.B. 1942, George Washington University
- Ralph Clarke Nash, Jr., *Professor of Law; Associate Dean of the National Law Center, for Graduate Studies, Research, and Projects*
B.A. 1953, Princeton University; J.D. 1957, George Washington University
- Lester Nurick, *Professorial Lecturer in Law*
B.S.S. 1934, City University of New York; LL.B. 1937, Brooklyn Law School
- †Charles Bernard Nutting, *Professor of Law*
B.A. 1927, J.D. 1930, University of Iowa; LL.M. 1932, S.J.D. 1933, Harvard University; LL.D. 1957, University of Pittsburgh; Litt.D. 1957, Geneva College; L.H.D. 1957, Seton Hill College; LL.D. 1960, Dickinson College of Law
- Jack Carl Oppenheimer, *Associate Professorial Lecturer in Law*
B.A. 1941, University of Wisconsin; LL.B. 1943, Yale University
- Robert Eugene Park, *Professor of Law*
B.S. 1952, B.A. 1957, LL.B. 1961, University of Florida; LL.M. 1965, Yale University
- Leonard Martin Patterson, Jr., *Assistant Professorial Lecturer in Law*
B.S. 1960, M.B.A. 1961, LL.B. 1966, University of California, Berkeley
- Max Pock, *Professor of Law*
J.D. 1958, University of Iowa; S.J.D. 1962, University of Michigan
- Edward Andrew Potts, *Professor of Law; Associate Dean of the National Law Center*
B.A. 1949, University of Michigan; LL.B. 1952, George Washington University
- Bernard Ramundo, *Professorial Lecturer in Law*
B.A. 1947, City University of New York; LL.B. 1949, M.A. 1957, Columbia University; Ph.D. 1966, American University

* On leave of absence 1968-69.

† On sabbatical leave fall semester 1968-69; on leave of absence spring semester 1969.

‡ On sabbatical leave spring semester 1960.

- David Robinson, Jr., *Professor of Law*
B.A. 1950, Reed College; LL.B. 1956, Columbia University; LL.M. 1965, Harvard University
- Eugene Harvey Rotberg, *Associate Professorial Lecturer in Law*
B.S. 1951, Temple University; LL.B. 1954, University of Pennsylvania
- Donald Phillip Rothschild, *Associate Professor of Law*
B.A. 1950, University of Michigan; J.D. 1965, University of Toledo; LL.M. 1966, Harvard University
- Joseph Michael Francis Ryan, Jr., *Professorial Lecturer in Law*
B.A. 1943, St. Joseph's College; LL.B. 1950, LL.M. 1952, Georgetown University; Judge, District of Columbia Court of General Sessions
- Lewis Aaron Schiller, *Associate Professor of Law*
B.A. 1950, LL.B. 1952, University of Texas; M.A. 1958, Fletcher School of Law and Diplomacy
- Charles Wilson Schoeneman, *Associate Professorial Lecturer in Law*
B.A. 1953, Bowdoin College; LL.B. 1958, Harvard University
- David Earl Seidelson, *Professor of Law*
B.A. 1951, LL.B. 1956, University of Pittsburgh
- David James Sharpe, *Professor of Law*
B.A. 1950, University of North Carolina; LL.B. 1955, Harvard University
- George Walter Shelhorse, *Associate Professorial Lecturer in Law*
LL.B. 1951, George Washington University
- Dudley Graham Skinner, *Clerk of the Trial Practice Court*
LL.B. 1940, George Washington University
- Alice Austin Soled, *Visiting Associate Professor of Law*
B.A. 1953, J.D. 1955, University of Michigan
- William Mark Speiller, *Associate Professorial Lecturer in Law*
B.S. 1950, LL.B. 1952, Syracuse University; LL.M. 1953, Harvard University
- John Regan Stark, *Associate Professorial Lecturer in Law*
B.A. 1938, Cornell University; M.P.A. 1947, New York University; J.D. 1952, George Washington University
- James Edward Starrs, *Professor of Law*
B.A., LL.B. 1958, St. John's University, New York; LL.M. 1959, New York University
- Alexander Louis Stevas, *Associate Professorial Lecturer in Law*
B.A. 1949, LL.B. 1951, George Washington University
- Theodore Tannenwald, Jr., *Professorial Lecturer in Law*
B.A. 1936, Brown University; LL.B. 1939, Harvard University
- Paul Ellsworth Treusch, *Professorial Lecturer in Law*
Ph.B. 1932, J.D. 1935, University of Chicago
- David Benson Weaver, *Professor of Law*
B.A. 1943, Ohio Wesleyan University; LL.B. 1948, Western Reserve University
- *Glen Earl Weston, *Professor of Law*
B.S. 1943, University of Maryland; LL.B. 1948, George Washington University
- Charles James Zinn, *Professorial Lecturer in Law*
B.A. 1927, LL.B. 1930, Fordham University; LL.M. 1951, S.J.D. 1954, Georgetown University

FELLOWS†

- Martin William Bercovici, *Teaching Fellow in Law*
B.S. 1964, University of Missouri; LL.B. 1967, New York University
- David Rogers Hendrick, Jr., *Teaching Fellow in Law*
B.A. 1965, LL.B. 1967, Baylor University
- Arthur Anthony Lemann III, *Teaching Fellow in Law*
B.A. 1964, Tulane University of Louisiana; LL.B. 1967, Loyola University, Louisiana
- Martin Paskoff, *Graduate Fellow in Government Procurement Law*
B.A. 1960, Brooklyn College; LL.B. 1962, Brooklyn Law School
- Joseph Roy Seiger, *Teaching Fellow in Law*
B.A. 1964, University of Pittsburgh; J.D. 1967, University of Michigan
- Barry Lee Springel, *Teaching Fellow in Law*
B.S. 1964, Drexel Institute of Technology; J.D. 1967, University of Michigan

* On sabbatical leave spring semester 1969.

† For the academic year 1967-68.

THE NATIONAL LAW CENTER RECORD 1967-68

Degrees Conferred

ANNUAL COMMENCEMENT, JUNE 4, 1967

BACHELOR OF LAWS

Student Marshal: Neil Eugene Roberts

Knut J. Aarsand, Virginia
B.A. 1961, Marshall University
Richard Coleman Agins, New York
B.A. 1964, Rutgers, the State University
Richard Gaspare Amato, District of Columbia
B.A. 1964, Georgetown University
David Albert Anderson, Virginia
B.S. 1963, Purdue University
David Joseph Angelone, New York
B.S. 1964, Boston College
Edward John Ashley, Maine
B.A. 1964, Brown University
Laura Smith Babin, New York
B.A. 1964, Brooklyn College
John Joseph Baker, New Jersey
B.A. 1964, University of Pittsburgh
David Fleming Barbour, Michigan
B.A. 1962, University of Michigan
Stanley Elliott Baritz, Maryland
B.A. 1964, George Washington University
Peter Maxwell Baskin, Virginia
B.S. 1964, University of Hartford
John Richard Benefel, District of Columbia
B.M.E. 1963, University of Detroit
Joseph M. Berl, New York
B.A. 1964, Columbia University
Richard Michael Berman, Maryland
B.A. 1964, University of Maryland
Richard Wallace Blackburn, Maryland
B.A. 1964, Michigan State University
Richard William Blas, Delaware
B.A. 1964, University of Delaware
Leonard Blum, New York
B.A. 1964, Brooklyn College
Robert I. Brauer, Maryland
B.A. 1964, University of Massachusetts
Charles Madison Brewer, Pennsylvania
B.A. 1964, Pennsylvania State University

Michael Elliot Brozost, Maryland
B.A. 1964, George Washington University
Brian Garrett Brunsvold, Virginia
B.S. in C.E. 1960, Iowa State University of
Science and Technology
Virginia Mary Budarz, Connecticut
B.A. 1964, Connecticut College
Wilbert Gaines Burnette, Virginia
B.A. 1957, Emory University
Mont L. Burrup, Utah
B.S. 1962, University of Utah
Bruce Gordon Campbell, Virginia
B.S. in B.A. 1963, Bowling Green State
University
William Kay Carter, California
B.A. 1964, American University
Gerald Michael Chizever, District of Columbia
B.B.A. 1964, George Washington University
John M. Cochran III, Virginia
B.A. 1963, College of William and Mary
Barry Allan Cohen, New Jersey
B.A. 1964, Rutgers, the State University
Robert Allen Cohen, Virginia
B.A. 1963, Ohio University
John J. Cohrsen, New York
B.S. in Ed. 1961, City College, New York
M.S. 1963, McGill University, Canada
Diane Phyllis Cole, Maryland
B.A. 1962, Pembroke College
Steven Martin Cooper, District of Columbia
B.A. 1964, George Washington University
Roger Dee Cox, Idaho
B.S. 1964, Brigham Young University
David Lindsay Crawford, Jr., Virginia
B.S. in B.A. 1964, Georgetown University
Nancy Louise Crimmins, Maryland
B.A. in Govt. 1964, George Washington
University

- Joseph William Crooks, Maryland
B.A. 1964, Lehigh University
- Samuel Alexander Culbertson III, Illinois
B.A. 1963, Claremont Men's College
- Richard G. Davis, Maryland
B.A. 1958, Lawrence University
- James Kent MacKendree Day, Maryland
B.A. 1964, Bucknell University
- James Raymond Denbo, District of Columbia
B.A. 1963, University of Michigan
- Herbert LeRoy DeNourie, Virginia
B.S. in M.E. 1958, University of Notre Dame
- Peter Edward Derry, Maine
B.A. 1962, Boston College
- Sara-Ann Determan, Virginia
B.A. 1960, University of Delaware
- John Roger Detwiler, Jr., Virginia
B.A. 1964, College of Idaho
- Stephen Brian Dewhurst, Virginia
B.A. 1964, George Washington University
- Michael Tracy Dick, Virginia
B.A. 1964, University of Oklahoma
- Harry Ashby Dickerson, New York
B.A. 1964, University of Vermont
- John Leslie Dietze, New York
B.A. 1964, Hofstra University
- Michael Andrew Dilligan, New York
B.Ch.E. 1961, Polytechnic Institute of Brooklyn
- Edward Austin Dixon, Jr., Pennsylvania
B.A. 1962, Princeton University
- Gerald Arthur Dost, District of Columbia
B.S. 1960, Pennsylvania State University
- B.A. 1961, Elizabethtown College
- Jared Michael Drescher, New York
B.S. in C.E. 1964, University of Vermont
- Norman Charles Dyer, Maryland
B.S. (S.S.) 1955, Georgetown University
- Ira Charles Edell, Maryland
B.E.E. 1958, Polytechnic Institute of Brooklyn
- William Randolph Elcazer, Maryland
B.A. 1953, Vanderbilt University
- Laurence A. Elgin, Maryland
B.A. 1963, Northwestern University
- Robert Howard Epstein, Maryland
B.S. in E.E. 1963, University of Maryland
- Ronald Charles Fettig, Virginia
B.S. 1956, Fordham University
- William H. Fitz, District of Columbia
B.A. 1964, Washington and Lee University
- Robert Brian Fitzpatrick, Maryland
B.A. 1964, George Washington University
- Joseph Clifton Fleming, Jr., Virginia
B.S. 1964, Brigham Young University
- John Thomas Flynn, Jr., Maryland
B.A. 1964, University of Notre Dame
- Bernard Augustus Foster III, Maryland
B.A. 1964, University of the South
- Henry Bowen Frazier III, Virginia
B.A. 1956, University of Virginia
- John Edward Fricker, District of Columbia
B.A. in Govt. 1964, George Washington University
- Gordon Samuel Friedman, Ohio
B.A. 1964, Miami University
- Martin Jerome Friedman, New York
B.A. 1964, University of Vermont
- Stanley F. Frost, New Mexico
B.A. 1962, New Mexico Highlands University
- John Russell Gates, Pennsylvania
B.A. 1964, Dickinson College
- Ronald M. Gates, District of Columbia
B.A. 1963, Franklin and Marshall College
- Arthur Spencer Gilbert III, Virginia
B.A. 1963, Vanderbilt University
- Stanton Jay Gildenhorn, District of Columbia
B.A. 1964, George Washington University
- Richard Harold Gins, Maryland
B.A. 1964, University of North Carolina
- Jack Gerald Goldberg, New York
B.B.A. 1964, George Washington University
- Edward Leroy Goode, Pennsylvania
B.A. 1964, Washington and Jefferson College
- Richard Foster Gordon, Utah
B.S. 1964, Utah State University of Agriculture and Applied Science
- Michael Martin Gotkin, New York
B.A. 1963, Brooklyn College
- John Charles Gray, Georgia
B.A. 1964, Wesleyan University
- Mary Sanders Gray, Virginia
B.A. 1950, Denison University
- Edward Anthony Greene, Virginia
B.S. in I.E. 1960, Northeastern University
- John H. Gross, Ohio
B.S. 1964, University of Pennsylvania
- Blair John Grover, Virginia
B.S. 1964, Utah State University of Agriculture and Applied Science
- Stephen Elliott Guss, Maryland
B.A. 1964, American University
- Kenneth Wayne Hadland, District of Columbia
B.S. in E.E. 1963, Purdue University
- Donald Henry Hadley, Maryland
B.A. 1964, George Washington University
- Stuart David Halpert, Rhode Island
B.A. 1964, Brown University
- Joseph William Hartary, Pennsylvania
B.S. 1959, Grove City College
- Lawrence Louis Hauser, Connecticut
B.A. 1964, Georgetown University
- James Lawrence Heizmann, Pennsylvania
B.A. 1964, Yale University
- Joseph Andrew Helyer, Virginia
B.S. 1962, Bowling Green State University
- Elliott Mark Himelstein, Arizona
B.A. 1962, Indiana University
- Peter Barnett Hoffman, New York
B.S. 1964, Cornell University
- Bruce Richard Hopkins, Michigan
B.A. 1964, University of Michigan
- Howard Barry Horowitz, Maryland
B.S. 1964, University of Maryland
- Bruce Edward Hosmer, New York
B.S. in Ch.E. 1964, Rensselaer Polytechnic Institute
- Robert Elliot Howard, New York
B.A. 1964, University of Vermont
- Stephen Ira Hurwitz, Maryland
B.A. 1964, Johns Hopkins University
- Thomas Francis Jackson III, Tennessee
B.A. 1962, Southwestern at Memphis
- Howard Spencer Jacobs, New York
B.S. in C.E. 1964, University of Vermont
- Rodney Kobler Johnston, District of Columbia
B.S. 1959, U.S. Naval Academy
- Charles Nelson Jolly, Maryland
B.S. 1964, College of the Holy Cross
- Kim Lee Jordan, Oregon
B.S. 1963, Brigham Young University
- Gerald Bruce Kagan, Virginia
B.A. 1964, University of Massachusetts
- David Mitchell Kanter, Maryland
B.S. in B.A. 1964, American University
- Lawrence Stout Kash, Kentucky
B.A. 1964, Bucknell University

- Jay A. Katz, New York
 B.A. 1964, University of Rhode Island
 Edward Katze, Maryland
 B.A. 1963, University of New Hampshire
 Steven Robert Kessler, New York
 B.A. 1964, Brooklyn College
 Michael Kimmel, Rhode Island
 B.A. 1959, Princeton University
 Stephen William Kraus, New York
 B.S. 1964, Brooklyn College
 David Patterson Lambert, Arkansas
 B.S. in B.A. 1962, University of Arkansas
 Sheldon Irving Landsman, New York
 B.S. in C.E. 1964, City College, New York
 Robert J. Lasker, District of Columbia
 B.S. in L.E. 1958, University of Connecticut
 Philip Timothy Lawlor, Jr., California
 B.C.S. 1963, Seattle University
 Andrew Dale Ledbetter, Tennessee
 B.A. 1964, Southwestern at Memphis
 Martin Lefkowitz, New York
 B.S. 1964, Carnegie Institute of Technology
 John Frederick LeFevre, Ohio
 B.A. 1964, Williams College
 Michael Paul Lefkowitz, New Jersey
 B.A. 1964, Tufts University
 Willie Lorenzo Leftwich, District of Columbia
 B.S. in E.E. 1960, Howard University
 Jeffrey Howard Leib, New York
 B.A. 1964, Brooklyn College
 John Waugh Leonard, New York
 B.A. 1964, Cornell University
 William Cooper Leonard, District of Columbia
 B.A. 1964, Morehouse College
 James Albert Leppink, Virginia
 B.S. 1957, University of Wyoming
 Barry Gordon Leven, New Jersey
 B.A. 1964, Rutgers, the State University
 Ivan Ira Light, New York
 B.A. 1964, State University of New York at Binghamton
 William F. Lindquist, Illinois
 B.A. 1961, St. Ambrose College
 John David Lister, Maryland
 B.M.E. 1963, Rensselaer Polytechnic Institute
 Roger Stuart Long, Michigan
 B.A. 1964, Michigan State University
 Stuart James Long, District of Columbia
 B.A. 1964, College of the Holy Cross
 David Alan Lovenheim, New York
 B.A. 1964, Brown University
 Barry Charles Maloney, New York
 B.S. in B.A. 1964, Georgetown University
 George Donald Markle, Pennsylvania
 B.A. 1964, Washington and Jefferson College
 William Harry Marmura, Maryland
 B.S. in Pet. Engr. 1959, University of Pittsburgh
 Thomas J. Marshall, Missouri
 B.S. in B.A. 1964, University of Missouri
 David Henderson Martin, Maryland
 B.A. 1962, Western Maryland College
 Roy Allen Martin, Maryland
 B.A. 1960, North Texas State University
 Arnold Steven Mazur, New York
 B.A. 1964, State University of New York at Buffalo
 Lucy Kelly McCabe, District of Columbia
 B.A. 1961, Manhattanville College of the Sacred Heart
 Michael John McGarry, Vermont
 B.A. 1964, University of Vermont
 Marcus Page McGraw, District of Columbia
 B.A. 1964, University of North Carolina
 Samuel Alexander McLoughlin, Vermont
 B.A. 1949, University of the Americas, Mexico
 Samuel Robert Mechanic, Pennsylvania
 B.S. 1964, Fairleigh Dickinson University
 Eugene Horace Harvey Meer, New York
 B.A. 1964, St. Lawrence University
 Richard Warren Meirowitz, New York
 B.A. 1964, University of Vermont
 Jack Menache, Virginia
 B.A. 1963, University of the Americas, Mexico
 Allan Franklin Meyer, New Jersey
 B.A. 1964, Syracuse University
 Michael Stephen Meyer, New York
 B.A. 1964, Brandeis University
 John Philip Meyerholz, Virginia
 B.B.A. 1963, M.B.A. 1964, University of Michigan
 John Mark Miller, Maryland
 B.A. 1958, Bridgewater College
 Edward Cornell Mills, Virginia
 B.A. 1964, The Citadel
 Rosemary Alice Mooney, District of Columbia
 B.A. 1964, Drake University
 George Douglas Morris, Maryland
 B.S. in C.E. 1961, University of Kentucky
 Leslie Gibson Morse, New York
 B.A. 1964, Barnard College
 Kenneth Lane Mostow, District of Columbia
 B.A. 1963, Oberlin College
 Douglas Grant Moxham, Massachusetts
 B.A. 1964, Tufts University
 David Charles Nevins, Minnesota
 B.A. 1962, University of Minnesota
 Richard Joseph Ney, District of Columbia
 B.A. 1964, Duke University
 William Nortman, New York
 B.A. 1964, Brooklyn College
 Daniel Michael O'Connell, Jr., New York
 B.A. 1964, University of Virginia
 Stephen P. Oggel, District of Columbia
 B.A. 1964, Vanderbilt University
 Douglas Keith Olson, District of Columbia
 B.A. 1964, University of Maryland
 Mark Lawrence Palmer, New York
 B.A. 1964, Brooklyn College
 Lawrence Joseph Pascal, Virginia
 B.A. 1964, St. Anselm's College
 James Norman Penrod, Vermont
 B.S. 1963, U.S. Naval Academy
 James Pinson Perry, Virginia
 B.S. in B.A. 1964, The Citadel
 David Andreas Peterson, California
 B.A. 1964, Occidental College
 Jean-Claude Pettion, District of Columbia
 B.A. 1964, Pennsylvania State University
 James Harold Phillips, Virginia
 B.S. in E.E. 1960, Rose Polytechnic Institute
 Mary Alice Planty, Illinois
 B.A. 1964, Smith College
 Alexandra Patricia Polyzoides, District of Columbia
 B.A. 1964, Bryn Mawr College
 Carl Robert Ramey, New York
 B.A. 1962, Marietta College
 M.A. 1964, Michigan State University
 Neil Steven Reiter, New York
 B.A. 1964, Brooklyn College
 Edwin Herbert Reitman, Maryland
 B.S. 1964, University of Pennsylvania
 Howard M. Rensin, Maryland
 B.A. 1964, Syracuse University
 Janet Elizabeth Rice, Virginia
 B.A. 1964, Wheaton College, Ill.

Julian Leon Ridlen, Indiana
 B.A. 1963, Anderson College, Ind.
 John-Douglas Robb, Nevada
 B.A. 1964, University of Nevada
 Neil Eugene Roberts, Maryland
 (With Distinction)
 B.S. in E.E. 1964, University of Maryland
 Arnold Jeffrey Robinson, Maryland
 B.A. 1964, University of Vermont
 Andrew Martin Rockman, New Jersey
 B.A. 1964, Rutgers, the State University
 Peter John Romeo, Virginia
 B.S. in B.A. 1964, Georgetown University
 Michael J. Romig, Maryland
 B.A. 1964, George Washington University
 Harold I. Rosen, Pennsylvania
 B.B.A. 1964, George Washington University
 James David Rosenbaum, Maryland
 B.A. 1964, American University
 Paul Alan Rosenbaum, New York
 B.S. 1964, Springfield College
 Rita Reitman Rosenkrantz, Maryland
 B.S. in B.A. 1954, Ohio State University
 Steven Lee Ross, Maryland
 B.A. 1964, Johns Hopkins University
 John Robert Rowe, Idaho
 B.A. 1964, University of Idaho
 Andrew Frederick Sayko, Jr., Virginia
 B.S. 1963, Providence College
 Dewey Donnell Schade, Missouri
 B.J. 1964, University of Missouri
 Lenore Schreiber, New York
 B.A. 1964, George Washington University
 Ralph Raymond Scott, New York
 B.A. 1964, University of Vermont
 Donald H. Seifman, Virginia
 B.A. 1964, New York University
 Gerald L. Shadwick, Virginia
 B.S. 1954, Kansas State University of
 Agriculture and Applied Science
 Robert Phillip Shapiro, New Jersey
 B.S. 1964, New York University
 Richard David Silver, Massachusetts
 B.A. 1964, Boston University
 Albert Neal Simmons, Maryland
 B.A. 1964, George Washington University
 Robert Barry Sims, New York
 B.A. 1964, Franklin and Marshall College
 Robert Arthur Singewald, Connecticut
 B.A. 1964, University of Notre Dame
 John Godman Skinner, District of Columbia
 B.A. 1964, Georgetown University
 Margery Waxman Smith, New York
 B.A. 1964, Smith College
 Jeffrey Graham Spragens, Ohio
 B.A. 1964, University of Cincinnati
 Richard Miles Stanislaw, Washington
 B.A. 1964, University of Washington
 Stephen Shane Stark, District of Columbia
 B.A. 1964, University of Denver

Harlia Dale Starnes, Virginia
 B.S. 1960, East Tennessee State University
 Lucille M. Stefanich, Pennsylvania
 B.A. 1964, Pennsylvania State University
 Albert Hugh Stephens, Florida
 B.S. 1959, Florida State University
 Robert Charles Stone, Florida
 B.A. 1964, American University
 Ronald Michael Stone, Massachusetts
 B.B.A. 1964, University of Massachusetts
 Eric James Swenson, Nebraska
 B.A. 1964, Stanford University
 Clifford Woodworth Taylor, Virginia
 B.A. 1964, University of Michigan
 Robert K. Tendler, Virginia
 B.A. 1964, Amherst College
 Peter Morgan Thall, Connecticut
 B.A. 1964, Columbia University
 Bert Masao Tomasu, Hawaii
 Ed.B. 1961, University of Hawaii
 Edward John Trojnar, District of Columbia
 B.S. 1962, University of Rochester
 Don Charles Uthus, Virginia
 B.A. 1963, George Washington University
 Marc Richard Wagshal, Maryland
 B.B.A. 1964, George Washington University
 Charles Stratton Walsh, District of Columbia
 B.S. 1964, University of Maryland
 Michael O. Warnecke, Maryland
 B.S. in M.E. 1963, Purdue University
 James McCartney Wearn, Florida
 B.A. 1964, Washington and Lee University
 Bohdan Wenglowksy, Virginia
 B.A. in Govt. 1964, George Washington
 University
 William L'Estrange Wertheimer, New Jersey
 B.A. 1964, Lafayette College
 John Leigh Westney, Jr., New York
 B.A. 1964, Trinity College, Conn.
 David Donald Whelehan, Virginia
 B.S. 1964, College of the Holy Cross
 Stanley O. Wilkins, Jr., Virginia
 B.A. 1963, University of Pennsylvania
 Sidney B. Williams, Jr., Arkansas
 B.S. in Ch.E. 1961, University of Wisconsin
 David Ian Wilson, Missouri
 B.A. 1963, Southern Illinois University
 Roger Charles Wolf, Ohio
 B.A. 1962, Harvard University
 Michael Lew Woods, Texas
 B.A. 1964, Texas Technological College
 Hugh James Yarrington, Maryland
 B.A. 1964, Randolph-Macon College
 Jann Leong Yuen, Hawaii
 B.A. 1958, University of Hawaii
 Harvey Zeller, Maryland
 B.E.E. 1963, City College, New York
 Thomas A. Zener, Virginia
 B.A. 1963, Oberlin College

MASTER OF LAWS

Fred Warren Bennett, Maryland
 B.A. 1964, American University
 LL.B. 1966, George Washington University
 Allen J. Berk, District of Columbia
 B.A. 1962, City College, New York
 LL.B. 1965, George Washington University
 William Mark Burch II, Michigan
 LL.B. 1949, Detroit College of Law

Donald Clarke Casey, Nebraska
 B.S. in C.E. 1961, J.D. 1964, University of
 Nebraska
 Christopher Stephen Changaris, Florida
 B.S. 1945, U.S. Coast Guard Academy
 J.D. 1958, George Washington University

Matthew Adam Clary, Jr., Texas
 B.S. 1951, University of Maryland
 J.D. 1955, George Washington University
 Archie Lee Fisher, District of Columbia
 LL.B. 1942, Catholic University of America
 Patsy Ann Fortinberry, South Carolina
 B.A. 1948, LL.B. 1961, University of South Carolina
 Benny Lee Kass, District of Columbia
 B.S. 1957, Northwestern University
 LL.B. 1960, University of Michigan
 Jesse Ernest Lasken, Maryland
 B.A. 1963, J.D. 1966, University of Michigan
 Philip Robert LeVine, Massachusetts
 B.A. 1962, LL.B. 1965, Boston University
 Paul Joseph McElligott, Massachusetts
 B.A. 1959, College of the Holy Cross
 LL.B. 1962, Georgetown University
 George Francis McGunnigle, Jr., Connecticut
 B.A. 1963, Boston College
 LL.B. 1966, Georgetown University
 Stephen James Murray, District of Columbia
 B.A. 1963, Brown University
 LL.B. 1966, Harvard University

Francis Terence O'Donnell, Maryland
 LL.B. 1939, American University
 Daniel Robert O'Neill, Missouri
 B.A. 1961, College of the Holy Cross
 J.D. 1966, St. Louis University
 David Enoch Pitchenik, New York
 B.E.E. 1962, University of Virginia
 LL.B. 1965, George Washington University
 Ronald F. Sandler, Pennsylvania
 B.S. 1959, Pennsylvania State University
 LL.B. 1963, Temple University
 Joseph Leonard Sarisky, District of Columbia
 B.A. 1958, American University
 LL.B. 1960, Georgetown University
 Lawrence Edward Shinnick, Florida
 B.S. in M.E. 1962, Carnegie Institute of Technology
 LL.B. 1965, University of Notre Dame
 Matthew Saul Watson, District of Columbia
 B.A., M.A. 1962, Johns Hopkins University
 LL.B. 1965, New York University
 William C. Wolff, California
 B.E.E. 1948, Rensselaer Polytechnic Institute
 M.B.A. 1949, University of Pennsylvania
 LL.B. 1957, Seton Hall University

MASTER OF COMPARATIVE LAW

Mehdi Mutlak Altimimi, District of Columbia
 LL.B. 1952, University of Baghdad, Iraq

Suham Shakir Shallal, Virginia
 LL.B. 1959, University of Baghdad, Iraq

MASTER OF COMPARATIVE LAW (American Practice)

Jose Eduardo Añon, Virginia
 Doctor en Derecho 1960, University of Havana, Cuba

DEGREES CONFERRED, SEPTEMBER 30, 1967

BACHELOR OF LAWS

Douglas Wayne Banks, Virginia
 B.S. 1963, Brigham Young University
 Dean Calvin Banner, Idaho
 B.S. 1964, Brigham Young University
 Donald Drifford Beckham, South Carolina
 B.A. in Ed. 1957, University of South Carolina
 Diane Fletcher Beemer, Virginia
 B.A. 1962, University of Colorado
 Richard Gene Berkley, Virginia
 B.S. 1960, Pennsylvania State University
 James George Boylan, Virginia
 B.S. 1959, Marquette University
 M.A. 1961, University of Washington
 George Charles Bruno, New York
 B.A. 1964, Hartwick College
 Robert John Buenzie, Virginia
 B.S. (Comm. and Eng.) 1964, Drexel Institute of Technology
 Michael Kirkland Casey, West Virginia
 B.S. in B.A. 1964, West Virginia University
 Robert Meyer Davidson, New York
 B.S. 1964, Purdue University
 Emily Claire Davis, California
 B.S. 1949, Columbia University

James Arthur Dillian, Florida
 B.S. 1945, U.S. Coast Guard Academy
 M.S. in I.A. 1965, George Washington University
 Fred Gene Favor, Arkansas
 B.A. 1964, University of Arkansas
 Benny Eloy Flores, New Mexico
 B.A. 1963, New Mexico Highlands University
 Brian Nicholas Flynn, New Jersey
 B.A. 1964, Rutgers, the State University
 Mark Kenneth Frank III, Florida
 B.S. in F.S. 1964, Georgetown University
 Ilona Ely Freedman, Virginia
 B.A. 1962, Mount Holyoke College
 Harry Aaron Fry, Jr., Pennsylvania
 B.S. 1964, Pennsylvania State University
 Max Nakata Garcia, Hawaii
 B.A. 1963, University of Hawaii
 Roberta Gottesman, District of Columbia
 B.A. in Ed. 1961, George Washington University
 Kerry Joseph Granger, Kansas
 B.A. 1964, Kansas State Teachers College
 Paul Frederick Greene, Rhode Island
 B.S. 1960, College of the Holy Cross

- Claude Arthur Stuart Hamrick, Virginia
B.S. in E.E. 1963, University of Florida
- Heber Palmer Hardy, Nevada
B.S. 1954, Brigham Young University
- Robert Francis Hargest III, Virginia
B.S. 1965, University of Maryland
- William Duncan Herrick, Virginia
B.S. in Ch.E. 1964, Northeastern University
- Henry Emmons Hilken, Maryland
B.A. 1961, Harvard University
- Richard Bruce Holcomb, Oklahoma
B.A. 1960, M.A. 1963, University of Oklahoma
- Dwight Jerome Holter, Virginia
B.S. 1959, M.S. 1963, University of North Dakota
- Roger Samuel Honig, Maryland
B.B.A. 1964, George Washington University
- Bowen Isaac Hosford, Virginia
B.A. 1939, Emory University
M.A. 1956, American University
- Thomas John Hughes, Jr., Virginia
B.A. 1964, University of Notre Dame
- Raymond Lee Kamrath, Maryland
B.A. 1961, University of Montana
- Frank Wilson Kiel, Pennsylvania
B.A. 1950, University of Pittsburgh
M.D. 1954, George Washington University
- John Lawson Kluttz, Virginia
B.A. 1964, University of Virginia
- James Tate Lambie, Virginia
B.S. in B.A. 1964, Carson-Newman College
- Dennis Ashley Laskin, Virginia
B.A. 1964, Ohio State University
- Stephan Ewbank Lawton, Oklahoma
B.A. 1964, University of Oklahoma
- Jon Gustave Lotis, Pennsylvania
B.B.A. 1963, University of Pittsburgh
- Bert Martin Luna, Hawaii
B.A. 1960, M.A. 1961, Emory University
- Thomas Leib Moorhead, Ohio
B.S. 1959, U.S. Military Academy
- Joseph Edward Moran, Maryland
B.A. 1963, University of Maryland
- William Gerard Murphy, New York
B.A. 1962, University of Florida
- Togo Nakagawa, Hawaii
B.B.A. 1963, University of Hawaii
- Thomas Richard Nedrich, Pennsylvania
B.A. 1965, Pennsylvania State College, Indiana
- Norman Leon Norris, Virginia
B.S. 1964, Michigan State University
- Frederick James O'Brien, Maryland
B.A. 1964, University of Hawaii
- Terence Lee Ogden, District of Columbia
B.A. 1964, Syracuse University
- Barbara Cherrix O'Leary, District of Columbia
B.A. 1962, Pembroke College
- Anthony Joseph Sarli, Jr., Virginia
B.S. 1963, Pennsylvania State University
- Stanley David Schwartz, New York
B.S. 1964, Queens College, New York
- Willis Philip Shuler, Virginia
B.S. in E.E., B.A. 1962, Rutgers, the State University
- Norman Burton Smith, Virginia
B.S. 1964, University of Pennsylvania
- Philip Neurath Smith, Jr., District of Columbia
B.S. 1964, University of Maryland
- John William Snow, District of Columbia
B.A. 1962, University of Toledo
- Kenneth Roger Sparks, District of Columbia
B.S. 1956, M.S. 1961, Ph.D. 1964, Syracuse University
- Adam Stein, Virginia
B.A. 1964, New York University
- Walter Hempelmann Stewart, Illinois
B.A. 1961, DePauw University
- Francis Herbert Sultter, Virginia
B.S. 1964, University of Utah
- Anthony Valanzano, New Jersey
B.A. 1964, Purdue University
- Chris J. Valianos, New York
B.S. 1959, Cornell University
- David Owen Williams, Maryland
B.A. 1960, Dickinson College
- M.A. 1962, American University
- Neal Foster Zimmers, Jr., Ohio
B.A. 1964, Denison University
- David Forsyth Zoll, Virginia
B.A. 1964, Colgate University

MASTER OF LAWS

- James David English, District of Columbia
B.A. 1963, Fordham University
LL.B. 1966, Georgetown University
- Peter Buck Feller, District of Columbia
B.A. 1960, University of Pennsylvania
J.D. 1964, American University
- Joan Margaret Ferguson, District of Columbia
LL.B. 1965, Manchester University, England
- Charles Franklin Gorder, California
B.S. 1947, U.S. Naval Academy
J.D. 1955, George Washington University
- James Kent Jeanblanc, Illinois
B.S. 1963, J.D. 1966, University of Illinois
- Issie Lee Shelton Jenkins, Maryland
B.A. 1956, Indiana University
LL.B. 1959, Boston University
- Robert Nobuichi Katayama, Hawaii
B.A. 1950, University of Hawaii
LL.B. 1955, Yale University
- John Thomas Kelly, Virginia
B.A. 1954, St. Ambrose College
LL.B. 1959, Creighton University
- Spencer John Nunley, Indiana
B.A. 1960, Columbia University
J.D. 1963, Indiana University
- Norman Ralph Thorpe, Illinois
B.A. 1956, LL.B. 1958, University of Illinois
- Ray M. Van Hook, Virginia
B.A. 1947, Centre College of Kentucky
LL.B. 1954, John Marshall Law School
- Alfred Hatcher Wells, Maryland
B.S. in B.A. 1955, University of South Carolina
LL.B. 1962, George Washington University

MASTER OF COMPARATIVE LAW

Sin Ok Kang, Korea
LL.B. 1961, Seoul National University,
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B.S. in F.S. 1957, Georgetown University
Licence en Droit 1965, University of Geneva,
Switzerland

DOCTOR OF JURIDICAL SCIENCE

Arturo Estrella, Puerto Rico
Dissertation: *Antitrust Law in Puerto Rico: A Study on the Interplay of Federal and Local Legislation*
B.A. 1944, LL.B. 1952, University of Puerto Rico

WINTER CONVOCATION, FEBRUARY 22, 1968

JURIS DOCTOR

Student Marshal: Arline Burstein Mendelson

Larry Joel Abraham, District of Columbia
B.A. 1964, Rollins College
Donna Carolyn Aldridge, Maryland
B.S. 1960, University of Maryland
Christopher Beard, Maryland
B.B.A. 1965, George Washington University
Stuart Edwin Beck, Virginia
B.S. in M.E. 1964, Drexel Institute of
Technology
Peter Jeffrey Berman, Maryland
B.S. 1965, University of Maryland
William Scott Bradbury, Virginia
B.S. in Ch.E. 1964, University of Arizona
Walter Roland Campbell, Maryland
B.S. in F.S. 1965, Georgetown University
Vincent George Cardella, Virginia
B.A. 1957, Villanova University
William E. Casselman II, Virginia
B.A. 1963, Claremont Men's College
Donald Hamilton Clark, Virginia
B.S. 1959, U.S. Naval Academy
Alan Theodore Dimond, Virginia
B.B.A. 1965, University of Miami
James Ashley Indicott, Jr., Missouri
(With Honors)
B.S. 1960, The Citadel
Noel Kenneth Evans, Virginia
B.A. 1962, University of Maine
Robert James Finan, Pennsylvania
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B.S. 1960, U.S. Coast Guard Academy
Stephen Patten Fox, District of Columbia
B.S. in E.E. 1964, Northwestern University
Gottlieb James Frick II, Missouri
B.A. 1963, Cornell University
Thomas Allen Gallagher, Maryland
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B.S. in E.E. 1965, Tulane University of
Louisiana
Jack Charles Goldstein, Texas
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B.S. in M.E. 1964, Purdue University
Edward Thomas Green, Pennsylvania
B.A. 1961, George Washington University

Gregory Newton Harney, Virginia
B.A. 1960, George Washington University
Bonnie Kay Harrison, District of Columbia
(With Honors)
B.A. 1965, Bucknell University
Ronnie Dean Havelka, Virginia
(With Honors)
B.S. 1964, University of Illinois
Ross Edward Heasley, Maryland
B.A. in Govt. 1960, George Washington
University
Stuart Alan Heller, District of Columbia
(With Honors)
B.Ch.E. 1962, Rensselaer Polytechnic Institute
David Lamar Hill, Alabama
B.S. 1963, University of Alabama
F. John Hill, Virginia
B.S. 1964, Brigham Young University
John Bernard Holden, Jr., District of Columbia
B.A. 1965, Ohio University
John Stuart Hunter, District of Columbia
B.A. 1961, Georgetown University
Denis Emerson Hynes, Minnesota
B.S. 1964, St. John's University, Minnesota
William Evert Jackson, District of Columbia
(With Honors)
B.S. 1962, University of Rochester
Dale Edward Johnson, Virginia
B.S. in M.E. 1959, University of Washington
George Robert Katsner, Kentucky
B.S. 1964, University of Kentucky
Ivan Stoykov Kavrukov, Virginia
B.E.E. 1964, George Washington University
Warren Paul Kuma, Virginia
B.S. 1964, College of William and Mary
Harry Thompson Lehrand, Montana
B.A. 1964, University of Montana
Harold Eugene Leiding, Nebraska
B.A. 1962, University of Nebraska
Michael Stewart Leo, New York
(With Honors)
B.A. 1965, Brooklyn College
Farrell LaVar Lines, New Mexico
B.S. 1963, Brigham Young University

Claire Edna Marcuccio, Maryland
 B.A. 1964, University of Maryland
 Robert Alton McNew, Virginia
 (With Honors)
 B.S. 1961, Louisiana State University
 Leslie Laszlo Megyeri, Maryland
 B.A. 1963, George Washington University
 Arline Burstein Mendelson, Maryland
 (With Honors)
 B.A. 1956, Barnard College
 M.A. 1959, Columbia University
 Samuel Elmore Mott III, Virginia
 (With Honors)
 B.Ch.E. 1960, Rensselaer Polytechnic Institute
 John Joseph Mulrooney, Tennessee
 B.S. in E.E. 1963, University of Notre Dame
 Howard Thomas Nelson, Virginia
 B.A. 1963, Brigham Young University
 Norman Fred Oblon, Virginia
 (With Honors)
 B.S. in Ch.E. 1964, Drexel Institute of
 Technology
 James David Olsen, Virginia
 (With Honors)
 B.S. 1959, University of Oklahoma
 Jerome Michael Polaha, Nevada
 B.A. 1964, University of Nevada
 Laurence Herbert Pretty, District of Columbia
 (With Honors)
 B.S. 1958, University of London, England
 Harry Wayne Quillian, Maryland
 (With Honors)
 B.A. 1960, Dartmouth College
 Robert Gabriel Rabben, Virginia
 B.A. 1961, Temple University
 Michael Rudolph, Virginia
 B.S. 1961, Polytechnic Institute of Brooklyn
 Forest Richard Schuenman, Virginia
 B.S. 1964, University of Utah

Walter Leonard Schwartz, Virginia
 B.E.E. 1955, Cooper Union
 M.S. in Engr. 1957, University of California,
 Los Angeles
 Thomas Allison Seeman, Pennsylvania
 B.S. 1957, Pennsylvania State University
 Sunny Acuff Seiler, Missouri
 B.A. 1965, Washington University
 Hulen Ray Selman, Texas
 B.A. 1964, University of Maryland
 Leonard Arnold Sloan, Virginia
 B.S. in B.A. 1962, American University
 David Phillip Stang, Pennsylvania
 B.A. 1961, Pennsylvania State University
 Gary Aceal Terry, Virginia
 B.A. 1964, University of California, Los Angeles
 Robert Martin Trepp, Maryland
 B.S.E. 1961, University of Michigan
 Martin Andries Vost, Texas
 (With Honors)
 B.S. 1964, University of California, Berkeley
 Joseph Edward Vorbach, New York
 (With Honors)
 B.S. 1959, U.S. Coast Guard Academy
 Michael Lawrence Wachtell, Virginia
 (With Honors)
 B.E.E. 1964, City College, New York
 John Francis Ward, Maryland
 B.S. 1964, University of Maryland
 Roger Conant Wiegand, Virginia
 B.A. 1965, Harvard University
 John Frederick Wolf, Jr., Maryland
 B.A. 1964, Georgetown University
 Sheldon Wolfson, New York
 B.A. 1965, Hunter College
 Richard Arthur Zimmerman, Maryland
 (With Honors)
 B.A. 1964, Miami University

MASTER OF LAWS

Robert Richard Allan Briggs, Virginia
 B.A. 1956, LL.B. 1960, Columbia University
 M.B.A. 1962, New York University
 James Bradway Butler, Minnesota
 B.A. 1963, Harvard University
 LL.B. 1966, University of Minnesota
 Frank Arthur Gregory, Virginia
 LL.B. 1961, University of Oklahoma
 Lawrence I. Kipperman, Illinois
 B.A. 1963, J.D. 1966, University of Illinois
 Charles Myron Levy, Virginia
 B.A. 1960, Syracuse University
 LL.B. 1963, New York University

Stephen Edward Moss, Maryland
 B.B.A. 1962, Baldwin-Wallace College
 LL.B. 1965, George Washington University
 Roger Carl Ohlrich, District of Columbia
 B.B.A. 1961, LL.B. 1964, University
 of Michigan
 David LeRoy Ryan, Kansas
 B.A. 1964, J.D. 1966, Washburn University
 of Topeka
 Thomas Arthur Wagoner, Nebraska
 B.S. 1960, LL.B. 1963, University of Nebraska
 Garrett Nicholas Wyss, District of Columbia
 B.A. 1957, University of Notre Dame
 LL.B. 1962, Catholic University of America

Students Registered, Spring Semester 1968

STUDENTS REGISTERED IN THE JURIS DOCTOR PROGRAM

A

Abbott, Edward S.
 B.A. 1965, University of Florida
 Ablard, James E.
 B.A. 1965, Pennsylvania State University

Fla.

Va.

Ablove, Esaac A.
 B.A. 1965, Barnard College
 Abramson, Martin
 B.E. 1965, City College, New York

N.Y.

N.Y.

Ackerman, George O. B.A. 1964, Marquette University	Ind.	Anders, Gerald K. B.A. 1965, University of Maryland	Md.
Adams, Bruce L. B.S. 1965, Newark College of Engineering	N.J.	Anderson, David E. B.S. in A.E. 1954, West Virginia University	Va.
Adams, Jon H. B.A. 1965, Colgate University	N.Y.	M.S. in Ae. 1958, Ae:Engr. 1960, California Institute of Technology	
Adams, Robert M., III B.A. 1966, Gettysburg College	Md.	Andrewelt, Roger B. B.A. 1967, Brooklyn College	N.Y.
Adlerstein, Lawrence J. B.A. 1965, Alfred University	N.Y.	Appelbaum, Richard A. B.S. 1961, U.S. Coast Guard Academy	Md.
Aglietti, Terry C. B.A. 1967, Texas A&M University	Va.	Appler, Thomas L. B.A. 1965, Princeton University	Va.
Alderman, Linda F. B.A. 1961, University of Florida	Fla.	April, Susan B.A. 1967, Vassar College	Va.
Allen, Gary R. B.A. 1963, University of Washington		Arfa, Richard S. B.A. 1967, Hunter College	N.Y.
Allister, Jeffrey W. B.A. 1967, University of Pennsylvania	D.C.	Armstrong, Brent R. B.A. 1967, Brigham Young University	Md.
Altman, Janet R. B.A. 1964, Wellesley College	N.Y.	Arnett, Alvin J. B.S. 1967, Florida Southern College	Md.
Alm, M.A.T. 1965, Northwestern University	D.C.	Arnold, Richard P. B.A. 1967, Pennsylvania State College, Indiana	Pa.
Ament, Warren W. B.A. 1963, University of Michigan	Mich.	Aronson, David R. B.A. 1967, Lafayette College	N.Y.
Amodeo, Michael D. B.A. 1967, Brooklyn College	N.Y.		
B			
Bailey, William W. B.S. in B.A. 1964, M.B.A. 1965, American University	Va.	Baumgarten, Leon I. B.A. 1966, Pennsylvania State University	Pa.
Baker, Gerald E. B.A. 1962, North Park College	Md.	Baxter, Gary M. B.S. 1966, Arizona State University	Ill.
Balaban, Alan S. B.A. 1964, University of Richmond		Beach, Roger A. B.S. 1964, University of Maryland	Md.
Balaban, Howard A. B.A. 1965, George Washington University	Va.	Bean, David H. B.A. 1963, San Diego State College	Va.
Ballantyne, Richard L. B.S.E. 1965, University of Connecticut	N.J.	Beard, Richard R. B.B.A. 1966, George Washington University	D.C.
Banoun, Raymond B.A. 1965, City College, New York	D.C.	Beavers, Michael W. B.A. 1966, Washington and Jefferson College	D.C.
Banov, Alan B.A. 1967, University of North Carolina	D.C.	Bechtel, Steven R. B.A. 1967, Tulane University of Louisiana	Va.
Banta, William F. B.S. 1965, Northwestern University	S.C.	Becker, William G. B.S. in M.E. 1964, Carnegie Institute of Technology	Pi.
Barkley, Brian E. B.A. 1967, University of Maryland	Va.	Beecroft, Joseph N. B.A. 1965, Brigham Young University	Md.
Barnes, Donald M. B.S. 1965, Pennsylvania State University	Md.	Beha, William H., Jr. B.S. in E.E. 1961, University of South Carolina	Va.
Baron, Ronald S. B.A. 1965, Bucknell University	Wash.	Behar, Stephen M. B.A. 1965, Brooklyn College	Va.
Barr, Charles H. B.A. 1959, M.A. 1966, University of Washington	Va.	Behringer, John W. B.S. 1959, University of Dayton	Va.
Barrier, Carl D. B.A. 1964, M.A. 1965, University of Kansas	Md.	Beling, Dorothy B.A. 1951, Smith College	Va.
Bartlett, Jeffrey W. B.A. 1965, Beloit College	Kans.	Bello, Richard A. B.A. 1967, New York University	Va.
Bartlett, Robert A. B.A. 1966, Yale University	D.C.	Benderson, Eric S. B.A. 1964, Syracuse University	N.Y.
Bascheer, Baheer W. B.S. 1965, U.S. Air Force Academy	Va.	Bennett, Edmund C. B.A. 1965, University of Bridgeport	Va.
Basralian, Joseph L. B.S. 1965, Fairleigh Dickinson University	Md.	Bennett, Robert P. B.A. 1967, Rutgers, the State University	Va.
Bas, Alvin S. B.S. 1962, City College, New York	Va.	Benton, Margaret A. B.A. 1964, Ohio State University	Fla.
Baum, William H., Jr. B.A. 1967, Georgetown University	D.C.	Bereano, Bruce C. B.A. 1966, George Washington University	N.Y.
	Md.	Berger, Jerold F. B.B.A. 1963, City College, New York	N.Y.
		Berger, Melvin G. B.S. 1965, City College, New York M.S. 1967, New York University	Md.

Bergere, Clifford W.	N.J.	Brant, William M.	Fla.
B.A. 1967, St. Lawrence University		B.A. 1959, University of Florida	N.Y.
Berkey, John W., Jr.	N.D.	Brauer, Lawrence M.	Va.
B.A. 1966, North Dakota State University		B.S. 1965, American University	
Berman, Joel	Mich.	Braverman, Burt A.	N.J.
B.A. 1967, Tufts University		B.A. 1966, Miami University	
Bernstein, A. Robert	N.Y.	Bredder, Roy S.	Mich.
B.A. 1967, Brooklyn College		B.A. 1965, Duke University	
Bernstein, Robert A.	Md.	Breimayer, Joseph F.	N.Y.
B.A. 1965, Pennsylvania State University		B.S. in E.E. 1965, University of Detroit	
Bernstein, Sidney T.	Md.	Breistein, Paul T.	D.C.
B.B.A. 1966, University of Miami		B.A. 1967, Syracuse University	
Bernthal, Eric L.	N.Y.	Breisford, Lloyd E.	D.C.
B.A. 1967, Columbia University		B.A. 1963, Washington State University	
Betts, Carolyn	Texas	Breznay, Deborah B.	Ill.
B.S. 1954, North Texas State University		B.A. 1963, Brooklyn College	
Bues, Edwin H.	Va.	Briggerman, Steven L.	D.C.
B.A. 1966, Brigham Young University		B.A. 1965, University of Chicago	
Bial, Madeleine S.	D.C.	Brigham, Thomas A.	D.C.
B.A. 1964, Miami University		B.A. 1966, Fresno State College	
Bing, Bonnie E.	N.C.	Bright, Patrick F.	D.C.
B.A. 1967, George Washington University		B.S. 1965, Georgetown University	
Birch, Thomas L.	Conn.	Brinck, Jeffrey K.	
B.A. 1967, Lehigh University		B.A. 1962, Dartmouth College	N.Y.
Blake, Stephen F.	Va.	M.S. 1964, Stanford University	
B.A. 1963, University of Maryland		Brochstein, David I.	N.Y.
Blanchard, John J.	Ill.	B.S. 1966, M.E. 1967, Cornell University	
B.S. 1966, Seton Hall University		Broido, Michael W.	Va.
Blankenbaker, Robert E.	Va.	B.A. 1965, University of Pennsylvania	
B.Ch.E. 1966, University of Virginia		Broman, Herbert D.	R.I.
Blish, John M.	D.C.	B.A. 1961, University of Maryland	
B.A. 1966, George Washington University		M.B.A. 1962, American University	
Bloom, Leonard H.	N.Y.	Brookner, Marvin A.	Va.
B.S. 1967, Cornell University		B.A. 1967, Brown University	
Bloom, Robert T.	N.Y.	Brown, David S., Jr.	Va.
B.A. 1967, Hofstra University		B.A. 1966, Syracuse University	
Bloomfield, Elaine L.	Ohio	Brown, Patricia L.	Va.
B.A. 1967, Western Reserve University		B.A. 1966, George Washington University	
Bloomfield, Ronald J.	N.Y.	B.A. 1966, Weber State College	Md.
B.A. 1965, Brooklyn College		Bruckner, Arnold D.	Md.
Blouch, John W.	D.C.	B.B.A. 1964, George Washington University	
B.A. 1962, Yale University		Brundage, Warner F., Jr.	Va.
Blumenfeld, Joel I.	N.Y.	B.A. 1966, University of Southern California	
B.A. 1965, Brooklyn College		Bryan, Martha E.	Va.
Blumenthal, Ronnie	N.J.	B.A. 1966, Brenau College	
B.A. 1966, George Washington University		Bryan, Robert E.	Va.
Bluer, Alvin P.	N.Y.	B.A. 1967, University of Virginia	
B.A. 1966, Brooklyn College		Bucholtz, Roy J.	N.Y.
Bogsch, Henry W.	D.C.	B.A. 1967, Queens College, N.Y.	
B.S. in F.S. 1966, Georgetown University		Bunim, David E.	Va.
Bomsey, Edward N.	N.Y.	B.A. 1965, University of North Carolina	
B.A. 1965, New York University		Burch, Richard K.	Va.
Bonner, William J.	Va.	B.A. 1966, Wichita State University	
B.A. 1961, Phillips University		Burk, Francis L., Jr.	N.Y.
Boraks, Robert A.	Ms.	B.A. 1965, Dartmouth College	
B.S. 1965, University of Pennsylvania		Bushell, Kenneth M.	Ark.
Bornstein, Joseph P.	Md.	B.A. 1965, Queens College, N.Y.	
B.S. 1965, University of Virginia		Butler, Arthur B., III	Mich.
Borwick, Rodney J.	Colo.	B.A. 1966, Trinity College, Conn.	
B.A. 1967, American University		Byrd, Charles F.	Va.
Boswell, Peyton, III	Va.	B.S. 1967, Wayne State University	
B.A. 1962, Lehigh University		Bywater, Douglas E.	
Bowers, Jonathan S.	Mich.	B.S. 1967, University of Utah	
B.A. 1967, University of Michigan			
Bozonelis, Basil T.	N.J.		
B.A. 1967, Rutgers, the State University			
C			
Cable, William H.	D.C.	Caldwell, Joseph E.	D.C.
B.S. 1967, University of Wisconsin		B.A. 1966, Colorado College	N.Y.
Calderwood, James A.	Ms.	Cameron, James R.	
B.S. 1964, University of Maryland		B.S. 1965, McGill University, Canada	

Campagna, Joseph A., Jr. B.A. 1967, University of Virginia	D.C.	Chum, John P. B.A. 1966, George Washington University	Md.
Campbell, Andrews B. B.A. 1963, Harvard University	D.C.	Clyman, Jeffrey M. B.A. 1967, University of Vermont	Va.
Canoyer, Mark R. B.B.A. 1966, Ohio University	Ohio	Coblenz, John E. B.S. 1965, U.S. Air Force Academy	Md.
Cant, Geoffrey D. B.S. 1959, U.S. Naval Academy	Md.	Cocke, Charles P. M.A. 1966, Georgetown University	Miss.
Caputo, Ralph V. B.A. 1966, Georgetown University	N.Y.	Codlin, Dennis E. B.A. 1966, University of Miami	Md.
Carlson, Jay L. B.S. 1965, University of Wisconsin	Wis.	Cogan, Robert P. B.S.E. 1966, Cooper Union	N.Y.
Carman, James C. B.S. 1966, University of Utah	D.C.	Cohen, Arthur J. B.A. 1967, Franklin and Marshall College	Pa.
Carpenter, Don S. B.A. 1966, Pennsylvania State University	Pa.	Cohen, Edward B. B.S. 1967, Lehigh University	N.Y.
Carson, Carl W. M.A. 1962, Tufts University	D.C.	Cohen, Harold J. B.A. 1967, State University of New York at Binghamton	N.Y.
Carson, Edith J. B.A. 1966, Duke University	N.C.	Cohen, Ira M. B.A. 1965, University of Pennsylvania	N.J.
Casey, Joseph E., Jr. B.A. 1964, Dartmouth College	D.C.	Cohen, Jay M. B.A. 1965, Temple University	Pa.
Castagnello, John D. B.A. 1965, New York University	N.Y.	Cohen, Leonard N. B.A. 1964, Rutgers, the State University	N.J.
Cathcart, Kerry L. B.A. 1967, Drake University	Iowa	Cohen, Stuart R. B.S. 1967, Brooklyn College	N.Y.
Chandler, Lawrence J. B.A. 1966, Boston University	Md.	Cohn, Ronald D. B.S. 1965, University of Illinois	Md.
Chapman, Eric D., III B.S. 1965, Northwestern University	Ohio	Collett, Charles W. B.A. 1966, George Washington University	Mass.
Chariot, Anthony E. B.A. 1965, University of Pittsburgh	Pa.	Collins, Lynn R. B.S. 1964, Brigham Young University	Md.
Charmey, Joseph P. B.A. 1966, Brooklyn College	N.Y.	Comstock, Gary R. B.S. 1964, Brigham Young University	Va.
Charnoff, Robert J. B.A. 1965, Queens College, N.Y.	N.Y.	Conti, Richard A. B.A. 1967, Merrimack College	N.J.
Chemnick, Paul W. B.A. 1966, George Washington University	Ariz.	Cooper, Barry A. B.E. 1966, City College, New York	Md.
Chomski, Joseph M. B.A. 1967, George Washington University	N.Y.	Coslov, R. Joel B.A. 1965, Brandeis University	Pa.
Christensen, Kenneth M. B.S. 1964, Montana State University	Md.	Cowin, Judith A. B.A. 1963, Wellesley College	D.C.
Christopher, George E. B.S. 1952, University of Maryland	Md.	Crane, Elaine R. B.A. 1966, Vassar College	Va.
Churchill, Bruce W. M.S. 1963, University of Wisconsin	Md.	Crane, John D. B.E. 1963, Yale University	Va.
Cincinnati, Linda A. B.S. 1965, Georgetown University	Md.	Crawford, Arthur R. B.S. 1966, Ohio Northern University	Ohio
Cisna, Frances L. B.S. 1950, M.A. 1952, George Washington University	D.C.	Crews, William E. B.A. 1966, Miami University	Ohio
Clark, Douglas R. B.A. 1965, Bucknell University	N.J.	Creyke, Stephen R. B.F.A. 1963, Carnegie Institute of Technology	Md.
Clark, George E. B.S. 1964, University of Arizona	N.Y.	Crummey, John K. B.A. 1962, American University	Md.
Clark, Robert G., III B.S. 1964, Massachusetts Institute of Technology	Md.	Crummine, Clarence A. B.A. 1967, Washington and Jefferson College	Va.
Cleary, John M. B.A. 1965, Catholic University of America	Minn.	Culbert, Andrew C. B.A. 1966, University of New Hampshire	Mass.
Clement, Daniel J. B.S. 1966, Pennsylvania State University	D.C.	Cunningham, Gary M. B.A. 1966, University of Michigan	Tenn.
		Cunningham, Richard O. B.A. 1964, M.A. 1966, George Washington University	Md.
Dahl, James G. B.A. 1961, Brigham Young University	Va.	Damme, Catherine J. B.A. 1966, Mount Holyoke College	Nebr.
Daly, Michael J. B.A. 1966, Bucknell University	Minn.	Dappolito, Alan E. B.A. 1967, University of Maryland	Md.

Darnell, Kenneth E.	Md.	Domico, Richard A.	Va.
B.S. 1967, Georgia Institute of Technology		B.S. 1964, University of Southwestern	
Davenport, David M.	Va.	Louisiana	Ohio
B.S. 1965, Mount St. Mary's College, Md.		Donohoe, Charles R.	
Davenport, Robert J.	Va.	B.S. 1964, M.S. 1965, Ohio State University	Md.
B.S. 1943, U.S. Military Academy		Dorsch, Nancy R.	
M.A. in I.A. 1961, George Washington		B.A. 1953, Smith College	
University		Ed.M. 1955, University of Pittsburgh	D.C.
Davis, Jon S.	Ohio	Dougherty, Alfred F., Jr.	
B.A. 1965, University of Michigan		B.S. 1963, U.S. Naval Academy	Va.
Davis, Malcolm H.	N.Y.	Dowell, William J.	
B.A. 1965, New York University		B.A. 1966, George Washington University	Md.
Davis, Michael R.	Md.	Dribin, Leland G.	
B.S. 1965, Rochester Institute of Technology		B.A. 1965, George Washington University	N.J.
Decker, Ken C.	Va.	Drucks, Howard E.	
B.S. in M.E. 1964, Purdue University		B.A. 1967, Rutgers, the State University	Va.
Deerin, James B., Jr.	D.C.	Dublin, Robert A.	
B.A. 1965, The Citadel		B.A. 1965, George Washington	Ill.
Deitz, William T.	Va.	University	
Litt.B. 1953, Rutgers, the State University		Dubow, Seymour	
Denenberg, Daniel K.	Fla.	B.A. 1965, Northwestern University	Md.
B.S. in Ch.E. 1965, University of Maryland		Duff, James T.	
Dettmar, Joseph H.	Va.	B.B.A. 1966, George Washington University	Md.
B.A. 1966, LaSalle College		Duffield, Edward H.	
Dickinson, Philip D.	Md.	B.S.E. 1965, University of Michigan	Md.
B.A. 1966, Franklin and Marshall College		Dugan, John R.	
Dictrow, Joel P.	D.C.	B.A. 1965, College of the Holy Cross	D.C.
B.A. 1966, New York University		Dugger, John A.	
Diener, Lawrence B.	N.J.	B.S. 1945, U.S. Naval Academy	
B.A. 1965, Johns Hopkins University		M.A. 1960, American University	Md.
Dier, Jerry L.	Md.	Dunbar, Craig B.	
B.A. 1965, University of Maryland		B.A. 1966, Texas A&M University	Va.
Dietel, James E.	D.C.	Dunbar, David H.	
B.S. 1964, Southern Methodist University		B.A. 1964, Ohio Wesleyan University	Va.
Dillahunt, Troy G.	Va.	Duncan, George C.	
B.S. 1965, Oklahoma State University of		B.S. 1939, U.S. Naval Academy	
Agriculture and Applied Science		M.S. 1947, Massachusetts Institute of	Mich.
Dobkin, Judith F.	Ill.	Technology	
B.A. 1965, University of Wisconsin		Dunchock, Arnold D.	
Dohnal, Dennis W.	Md.	Ph.B. 1965, Wayne State University	Va.
B.A. 1967, Bucknell University		Dunn, John T.	
Dolan, Michael W.	Va.	B.A. 1965, University of Notre Dame	Md.
B.A. 1964, University of Kansas		DuRoss, William H., III	
		B.A. 1965, Yale University	Nev.
		Duty, John M.	
		B.A. 1965, University of Nevada	

E

Eames, Wendell B.	Md.	Efroymson, Mary A.	Ind.
B.A. 1965, Brigham Young University		B.A. 1965, Wellesley College	N.Y.
Earle, Douglas R.	Va.	Eisenbud, Robert E.	
B.A. 1965, Michigan State University		B.A. 1965, Washington College	N.Y.
Early, Allan B.	N.J.	Elbaum, Saul	
B.A. 1967, Denison University		B.E.E. 1965, City College, New York	N.Y.
Eaton, Allen T.	Va.	Elson, Barry R.	
B.S. 1956, West Virginia State College		B.S. 1967, New York University	Conn.
Ebel, John S.	Va.	Emanuel, Richard	
B.S. 1966, Washington University		B.A. 1967, University of Connecticut	Va.
Echter, Martin S.	Conn.	English, John W.	
B.A. 1967, Dartmouth College		B.A. 1966, University of Michigan	
Edelman, Lawrence	Md.	Everette, Donnie L.	
B.S. in Ch.E. 1965, University of Maryland		B.S. 1960, Hampton Institute	
Edmiston, John W.	Va.		
B.A. 1963, Miami University			

F

Fahy, Michael C.	N.J.	Fields, Kenneth R.	N.Y.
B.A. 1967, Brown University		B.A. 1965, New York University	Pa.
Farnham, John D.	D.C.	Fierer, Robert G.	Pa.
B.A. 1958, University of Minnesota		B.S. 1964, University of Notre Dame	
Feuerzeig, Henry L.	Ill.	Fineman, S.D.	
B.S. 1962, University of Wisconsin		B.A. 1967, American University	

Pink, Marc J. B.A. 1967, State University of New York, College at Fredonia	N.Y.	Forman, Mark A. B.S. 1967, Pennsylvania State University	N.J.
Fiori, Patricia A. B.A. 1967, Goucher College	Pa.	Fortunato, Stephen J. B.A. 1965, Providence College	Va.
Fisch, Jeffrey H. B.S. 1965, University of Pennsylvania	Va.	Fox, Kenneth H. B.A. 1965, Lafayette College	N.Y.
Fish, Emanuel S. B.A. 1965, Rutgers, the State University	Va.	Franklin, Robert N. B.A. 1965, New Mexico State University	D.C.
Fishbein, Harvey B. B.A. 1967, Syracuse University	N.Y.	Freedhand, Martin L. B.A. 1964, Alfred University	N.Y.
Fisher, Gerald M. B.S. 1958, Drexel Institute of Technology	Pa.	M.B.A. 1965, University of Pittsburgh	Tenn.
Fitzmorris, Kevin T. B.A. 1967, Georgetown University	Va.	Freedman, Edward R. B.S.E. 1966, University of Michigan	N.J.
Fleet, Leslie G. B.A. 1965, American University	Va.	Freedman, Jeffrey M. B.A. 1967, University of Pennsylvania	Md.
Fleischaker, Marc L. B.S. 1967, University of Pennsylvania	Ky.	Freedman, Mark S. B.A. 1965, Georgetown University	N.Y.
Fleischer, Charles H. B.A. 1966, University of Rochester	N.Y.	Friedman, Robert G. B.S. 1967, New York University	Va.
Foelak, Morton B.S. 1953, Brooklyn College	Va.	Friedman, Sheldon E. B.A. 1967, Miami University	Va.
Fogelberg, Carl R. B.A. 1963, Dartmouth College	D.C.	Frischkorn, Allen R. B.A. 1967, Pennsylvania State University	Okla.
Foote, Francis W., II B.A. 1967, Washington and Lee University	N.Y.	Fullerton, Judith A. B.A. 1966, Vassar College	

C

Gailor, Frank R. B.S. 1966, South Dakota State University	Va.	Glanzman, Gerald H. B.S. in M.E. 1964, Purdue University	Ind.
Galanthay, Theodore E. B.E.E. 1961, Clarkson College of Technology	Va.	Glaser, Gary B.A. 1965, City College, New York	D.C.
Gardiner, Joel F. B.A. 1966, University of Massachusetts	Mass.	Glasgow, Robert E. B.A. 1966, George Washington University	Oreg.
Gardner, Robert K. B.A. 1967, Brigham Young University	D.C.	Glennon, Elizabeth Q. B.A. 1954, Pomona College	Md.
Garfield, Mary Lee G. B.A. 1965, George Washington University	D.C.	Glickman, Danny R. B.A. 1966, University of Michigan	Kans.
Garfinkel, Steven B.A. 1967, George Washington University	Md.	Godwin, Steven L. B.S. 1966, Brigham Young University	Nev.
Garman, Ronald L. B.A. 1967, Syracuse University	N.Y.	Gogolak, Charles P. B.A. 1966, Princeton University	N.Y.
Garrison, David F. B.A. 1965, Amherst College	Mass.	Goldberg, Charles S. B.S. 1967, University of Maryland	Md.
Garrison, David L. B.S. in Ch.E. 1963, Oregon State University	Peru	Goldberg, James M. B.S. 1961, Syracuse University	D.C.
Gaw, Mary J. B.A. 1963, Wellesley College	Md.	Goldberg, Theodore B.A. 1953, Brooklyn College	D.C.
Gayle, David M. B.S. 1965, Case Institute of Technology	Md.	Goldman, Howard S. B.S. 1965, University of Wisconsin	N.Y.
M.S. 1967, Rutgers, the State University		Goldsand, Richard I. B.A. 1966, George Washington University	N.Y.
Gelman, Robert S. B.A. 1966, Brooklyn College	N.Y.	Goldsmith, Philip R. B.S. 1966, Pennsylvania State University	D.C.
Gelizer, Robert L. B.A. 1965, Queens College, N.Y.	N.Y.	Goldstein, Bruce B.A. 1966, University of North Carolina	S.C.
Geraghty, John J. B.A. 1957, S.T.B. 1959, St. Mary's Seminary and University	D.C.	Goldstein, Jack C. B.S. in M.E. 1964, Purdue University	Md.
Gerber, Thomas J. B.A. 1966, Northwestern University	Ill.	Goldstone, Steven F. B.A. 1967, University of Pennsylvania	N.Y.
Gersh, Victor B. B.A. 1966, Michigan State University	N.Y.	Goshorn, Kenneth W. B.A. 1966, Carleton College	Pa.
Gibbons, John M. B.S. 1962, University of Houston	Va.	Gossens, Paul J. B.A. 1962, Catholic University of America	Wis.
Gillingham, Stephen T. B.A. 1966, Juniata College	Pa.	Goulding, James E. B.S. 1965, Brigham Young University	Va.
Gilroy, Richard D. B.A. 1965, Ohio University	Puerto Rico	Graber, Charles S. B.A. 1967, The Citadel	S.C.
Ginsburg, Richard M. B.A. 1967, Western Reserve University	Ohio	Graev, Lawrence G. B.A. 1966, Cornell University	N.Y.

Graham, Robert L.	N.J.	Gregory, Roger M., Jr.	Md.
B.B.A. 1964, George Washington University		B.S. 1947, U.S. Naval Academy	Md.
Gramse, Gaylin Q.	Mass.	Griffith, Cleo	Md.
B.A. 1966, Mount Holyoke College		B.A. 1965, Mount Holyoke College	Md.
Graubard, Mark D.	N.Y.	Grimm, John F.	D.C.
B.A. 1966, State University of New York at Binghamton		B.S. 1961, Fordham University	
Grayson, David K.	Hawaii	Grossman, Martin L.	Md.
B.A. 1965, George Washington University		B.A. 1967, University of Pennsylvania	
Green, Howard R.	Va.	Grove, Jeffrey W.	D.C.
B.A. 1964, University of California, Berkeley		B.A. 1965, Juniata College	
Green, Robert L.	Va.	Gruen, Steven I.	Alaska
B.A. 1967, Johns Hopkins University		B.A. 1967, New York University	
Greenberg, Roger E.	Md.	Gruening, Clark S.	D.C.
B.A. 1966, University of Maryland		B.A. 1963, University of Oregon	
Greenberg, Stephen M.	Va.	Guerrant, Terry E.	D.C.
B.A. 1965, Washington and Jefferson College		B.A. 1967, Texas Christian University	
Greenstein, Abraham J.	Va.	Gurne, Patricia D.	Md.
B.A. 1965, New York University		B.A. 1965, MacMurray College	
Greenstein, Judith E.	N.J.	Guthman, David H.	
B.A. 1967, New York University		B.A. 1964, California State College at Long Beach	
Greenstein, Michael P.	Pa.	M.P.A. 1965, University of Southern California	
B.A. 1965, LaSalle College			
Greer, Ralph S.	Md.		
B.S. 1953, U.S. Military Academy			

II

Haas, Steven C.	N.Y.	Hart, Bruce B.	Md.
B.A. 1967, Syracuse University		B.S. 1962, Western Michigan University	Va.
Habel, Ronald W.	D.C.	Harter, Alan R.	
B.S. 1960, Utah State University of Agriculture and Applied Science		B.S. 1958, Utah State University of Agriculture and Applied Science	Va.
Haber, Martin D.	N.Y.	Hartman, Pierre M.	Va.
B.A. 1967, City College, New York		B.A. 1958, University of Colorado	
Hale, Susan E.	D.C.	Harvey, Calvin R.	N.Y.
B.A. 1962, University of Michigan		B.A. 1965, Washington and Jefferson College	
Halper, Robert	Va.	Harwin, Robert B.	D.C.
B.A. 1939, University of Illinois		B.A. 1967, Miami University	
B.Ch.E. 1950, New York University		Hassid, Jack	Va.
M.S. in Ch.E. 1958, Newark College of Engineering		B.A. 1967, Hofstra University	
Ham, Richard J.	Md.	Hatch, Douglas L., Jr.	Va.
B.A. 1966, George Washington University		B.A. 1962, American University	
Hammersley, James U.	Idaho	Hatheway, Gordon W., Jr.	Va.
B.A. 1965, University of Utah		B.S. in Ed. 1965, Bucknell University	
M.A. 1967, University of Denver		Hausfeld, Michael D.	Hawaii
Hamm, John W.	Ohio	B.A. 1966, Brooklyn College	
B.A. 1967, Denison University		Hawkins, Carol T.	Ky.
Hammond, Thomas W., III	Va.	B.A. 1966, Skidmore College	
B.A. 1966, George Washington University		Haynes, James R.	
Hampe, Richard A.	D.C.	B.A. 1961, Fisk University	Va.
B.A. 1965, University of Massachusetts		M.A. 1964, University of Michigan	
Hampshire, Thomas R.	N.J.	Heeb, Jeffrey O.	N.C.
B.S.E. 1967, Stevens Institute of Technology		B.A. 1965, University of Kansas	
Hanson, Bruce H.	Va.	Hendren, Ralph C.	N.Y.
B.S. 1967, University of Wisconsin		B.A. 1967, University of North Carolina	
Hanson, Jack W.	Va.	Hertzberg, Michael A.	Md.
B.A. 1965, University of North Dakota		B.A. 1966, Colgate University	
Hanson, John L., Jr.	Fla.	Heselton, Frank R., Jr.	N.C.
B.S. 1955, American University		B.A. 1963, University of Michigan	
Hanson, John N.	Wis.	Hickey, Mellie H.	D.C.
B.A. 1967, George Washington University		B.A. 1967, Sweet Briar College	
Harding, Don L.	Idaho	Hickson, Carolyn L.	Pa.
B.B.A. 1964, George Washington University		B.A. 1964, George Washington University	
Harmsen, Stephen M.	Utah	Hiestler, Daniel W., Jr.	Va.
B.S. 1966, University of Utah		B.A. 1966, Dickinson College	
Harris, Arthur J., II	Mich.	Hilliard, Robert G.	Va.
B.A. 1965, Michigan State University		B.A. 1965, Clemson University	
Harris, Randy A.	Ill.	Hilt, Ronald P.	
B.A. 1967, Grinnell College		B.S. 1967, University of Illinois	
Harrison, Bruce S.	Conn.	Hines, Margaret L.	
B.A. 1967, Western Reserve University		B.S. 1960, College of William and Mary	

Hink, Frederick P. B.A. 1964, George Washington University	D.C.	Houglund, Charles A. B.S. 1959, U.S. Naval Academy	Va.
Hodge, William H. B.S. in E.E. 1963, University of Arkansas	Md.	Howe, Philip M. B.A. 1967, College of the Holy Cross	Mass.
M.S. 1964, University of New Mexico		Hoyt, Peter B. B.S. 1963, University of Virginia	Va.
Hoffman, Barry P. B.A. 1963, Pennsylvania State University	Va.	Huber, William R. B.S. 1932, U.S. Military Academy	Va.
Hoffman, Gary M. B.S. in E.E. 1967, University of Pennsylvania	Pa.	M.B.A. 1950, University of Michigan	
Hollander, Charles A. B.A. 1966, University of Pittsburgh	N.Y.	Huberfeld, Harold B.S. 1965, Drexel Institute of Technology	Pa.
Hollins, Michael S. B.A. 1966, Washington and Jefferson College	N.Y.	Hudson, William J., Jr. B.A. 1965, Duke University	Md.
Holloran, Michael J. B.A. 1966, George Washington University	D.C.	Hume, John P. B.B.A. 1964, University of Notre Dame	Va.
Holmes, Donald C., Jr. B.S. 1965, University of Maryland	Md.	Hunt, Roger L. B.A. 1966, Brigham Young University	Va.
Holum, John D. B.S. 1963, Northern State College	D.C.	Hunter, Raymond M. B.A. 1966, Stanford University	D.C.
Hoover, Wayne B.S. in Ch.E. 1961, Purdue University	Va.	Hurley, Daniel T. B.A. 1964, St. Anselm's College	Mass.
Hordes, Donald B. B.A. 1966, University of Maryland	Md.	Hutt, Martin J. B.A. 1967, University of Maryland	Md.

I			
Inouye, Ronald N. B.A. 1967, Brigham Young University	Utah	Isikoff, Nathan R. B.A. 1964, Cornell University	Md.
Izseff, William E. B.S. 1966, University of Nevada	Nev.	Itnyre, Edwin R. B.A. 1952, George Washington University	Md.

J			
Jacobs, Alan S. B.A. 1967, University of Pennsylvania	N.Y.	Johnston, John H. B.A. 1967, American University	Va.
James, Robert L. B.A. 1966, Cornell University	Md.	Jones, Christian B. B.A. 1967, Vanderbilt University	Ga.
Jensen, Douglas V. B.A. 1966, Brigham Young University	Mich.	Jones, Roger D. B.A. 1965, St. Lawrence University	N.Y.
Jeweler, Bernard P. B.A. 1967, University of Maryland	Md.	Joselow, Robert B. B.A. 1966, New York University	N.Y.
Jinks, J.D. B.B.A. 1959, Texas A&M University	Va.	Josten, Robert E. B.A. 1964, Morningside College	D.C.
Johnson, Robert A. B.A. 1957, M.A. 1961, Marshall University	D.C.	Joy, Stephany L. B.S. 1963, Le Moyne College, N.Y.	N.Y.
Johnson, Susan L. B.S. 1963, University of Pennsylvania	Mass.	M.A. 1965, George Washington University	
Johnson, Terry L. B.A. 1967, New Mexico State University	N.M.	Judd, Robert L. B.A. 1963, Kalamazoo College	Va.
Johnson, Wayne M. B.A. 1965, University of Maine	Maine	B.S.E. 1964, University of Michigan	
		Jungblut, Edith J. B.A. 1953, Mount Mercy College, Pa.	Pa.

K			
Kaczensky, Tobey W. B.A. 1966, Harvard University	D.C.	Karp, Irwin D. B.A. 1967, City College, New York	N.Y.
Kahn, Bertrand J. B.A. 1966, George Washington University	N.Y.	Karpel, Curtis J. B.A. 1966, American University	N.Y.
Kalish, William B.A. 1967, University of Pittsburgh	N.J.	Karrat, Anthony J. B.A. 1967, University of Notre Dame	N.Y.
Kaller, Paul J. B.A. 1966, Syracuse University	Va.	Kaschak, Robert J. B.A. 1965, State University of New York at Binghamton	N.Y.
Kallor, David J. B.A. 1965, Michigan State University	N.Y.	Kashinski, Albert A. B.A. 1963, B.S. 1964, University of Notre Dame	Ill.
Kane, John F. B.A. 1967, College of William and Mary	Va.	Kassenoff, Melvyn M. B.A. 1964, Columbia University	Md.
Kaenglaer, Jay R. B.A. 1967, Columbia University	N.J.	M.S. 1966, Massachusetts Institute of Technology	
Kaplan, Roger P. B.A. 1965, University of Maryland	N.Y.	Katz, Craig D. B.A. 1967, University of North Carolina	N.J.
Kardia, Phillip J. B.S. 1965, University of Illinois	Va.		

Katz, Martin V. B.A. 1967, Queens College, N.Y.	N.Y.	Knight, Louise O. B.A. 1966, Wellesley College	Ma
Katzberg, Robert B.A. 1967, Brooklyn College	N.Y.	Knight, Newel B. B.S. 1965, Brigham Young University	Ind
Kaufman, Stuart B.A. 1965, New York University	N.Y.	Knop, John R. B.A. 1966, Indiana University	Ma
Kay, William F. B.A. 1963, Yale University	Va.	Koch, Charles H., Jr. B.A. 1966, University of Maryland	N.Y.
Kaye, Robert N. B.S. 1967, New York University	N.Y.	Koff, Gail J. B.A. 1967, University of California, Berkeley	Conn.
Keilp, Joseph R. B.A. 1965, Georgetown University	N.J.	Kogan, Jason D. B.S. 1966, Pennsylvania State University	Conn.
Kelley, Carol P. B.A. 1965, Wellesley College	Fla.	Koons, Charles A. B.A. 1965, Cornell University	N.J.
Kelley, Joseph E., III B.A. 1965, Gettysburg College	N.J.	Kopecki, Alan E. B.M.E. 1966, Villanova University	N.J.
Kemp, John M. B.A. 1965, Michigan State University	Va.	Koppel, James G. B.A. 1966, University of Wisconsin	Va.
Kemper, Edward C., III B.A. 1965, George Washington University	Va.	Korman, James W. B.A. 1965, College of William and Mary	Ma
Kendall, Peter W. B.A. 1967, Temple University	Pa.	Kornbau, Anne M. B.S. 1966, Drexel Institute of Technology	N.J.
Kendall, Richard J. B.A. 1965, University of Montana	D.C.	Kramer, Bruce S. B.A. 1966, Washington and Lee University	N.Y.
Kenyon, David B. B.A. 1965, Yale University	Conn.	Kramer, Michael A. B.A. 1967, Syracuse University	Ohio
Kerr, Peyton A., III B.A. 1965, George Washington University	Ma	Kramer, Theodore D. B.B.A. 1967, University of Michigan	Ma
Kesend, Samuel C. B.A. 1967, State University of New York at Buffalo	N.Y.	Kramon, James M. B.S. 1966, Carnegie Institute of Technology	Pa.
Kessler, Edward J. B.S. (E.E.) 1967, George Washington University	Va.	Kresman, Marshall E. B.S. 1966, Drexel Institute of Technology	N.Y.
Kile, Bradford E. B.M.E. 1966, Ohio State University	D.C.	Krinsky, Barry H. B.A. 1966, Brooklyn College	Ma
Kiley, Thomas D. B.A. 1965, Pennsylvania State University	Pa.	Krosin, Kenneth E. B.S.E. 1966, Princeton University	Ma
Killworth, Richard A. B.S. 1965, M.A. 1966, Purdue University	Va.	M.S.E. 1967, University of Michigan	
Kinney, Robert G. B.A. 1960, Ohio State University	Ma	Krueger, Frank K., Jr. B.A. 1967, Johns Hopkins University	Nebr.
Klasic, Donald F. B.A. 1966, Youngstown University	Pa.	Kruse, James R. B.A. 1967, Nebraska Wesleyan University	Wa.
Kleeman, Nancy J. B.A. 1967, Wellesley College	Ma	Kuchenberg, Thomas C. B.S. in F.S. 1964, Georgetown University	Ohio
Kleinman, Carol C. B.A. 1966, Northwestern University	Va.	Kuhnlein, Robert L. B.A. 1965, Rockhurst College	Mich
Kleman, Richard D. B.A. 1962, Duquesne University	D.C.	Kula, James R. B.A. 1967, University of Michigan	Va.
Kline, Norman L. B.A. 1965, Rutgers, the State University	N.J.	Kurzbard, Myra S. B.A. 1963, Chatham College	Wash.
		Kustina, Frank D. B.A. 1965, University of Washington	Va.
		Kyle, Richard D. B.A. 1964, College of Idaho	
L			
Laird, Michael H. B.S. in Ch.E. 1962, Texas Technological College	Texas	Lane, Richard S. B.S. 1965, University of Virginia	N.Y.
Lall, Prithvi C. B.S. 1950, Panjab University, India Ph.D. 1962, Oregon State University	D.C.	Lang, Paul B. B.S. 1961, U.S. Naval Academy	Ma
Lamb, Raymond P. B.A. 1967, Dartmouth College	Va.	Latimer, Kenneth A. B.S. 1966, University of Wisconsin	N.Y.
Lambert, Richard A. B.S. 1964, George Washington University	D.C.	Lav, Arnold P. B.A. 1967, New York University	N.M.
Land, Douglas S. B.A. 1967, Boston University	N.Y.	Lawless, Barbara J. B.A. 1966, New Mexico Highlands University	Va.
Landman, Steven R. B.A. 1967, Dickinson College	Conn.	Lawrence, Stanton T. B.S. 1967, Colorado State University	Mass.
Landsman, Gary B. B.S. 1965, University of Maryland	D.C.	Leary, Theodore M., Jr. B.A. 1966, Harvard University	

Leath, William J. B.A. 1967, University of North Carolina	N.C.	Loftis, James R., III B.A. 1965, Washington and Lee University	D.C.
Ledom, Charles M., Jr. B.S. 1966, Purdue University	Ind.	Logan, Robert J. B.S. 1966, University of Utah	Md.
Lefenfeld, Mark S. B.A. 1967, Franklin and Marshall College	N.Y.	Longest, Darrel L. B.A. 1966, Georgetown University	Md.
Lerman, Robert A. B.A. 1964, Pennsylvania State University	Va.	Loss, Ira S. B.A. 1966, University of Connecticut	Conn.
Lesser, Wayne L. B.A. 1966, Lafayette College	N.J.	Louiselle, Bruce M. B.A. 1965, George Washington University	Va.
Lessy, Roy P., Jr. B.A. 1966, Franklin and Marshall College	Pa.	Love, Darryl N. B.A. 1967, University of Minnesota	D.C.
Letson, Laurence R. B.S. in M.E. 1963, University of Nebraska	Va.	Lowrey, Alfred H. B.S. 1962, Stanford University	Md.
Levy, Richard A. B.A. 1966, Dickinson College	N.J.	Ph.D. 1966, Yale University	
Levin, Samuel M. B.A. 1966, George Washington University	Va.	Luber, Michael B.A. 1966, Pennsylvania State University	Pa.
Levine, Aaron B.A. 1965, University of Maryland	Md.	Luckett, Jackson R. B.Gen.Ed. 1964, Municipal University of Omaha	D.C.
Levine, Theodore A. B.A. 1966, Rutgers, the State University	Va.	Lundy, Joseph R. B.A. 1962, Princeton University	D.C.
Lery, Charles S. B.A. 1967, Boston University	Ill.	Lunsford, John K. B.A. 1966, Olivet Nazarene College	Md.
Lewis, Elise A. B.A. 1967, University of Pennsylvania	D.C.	Lupo, Raphael V. B.E.E. 1963, George Washington University	Va.
Lewis, Robert C. B.A. 1965, University of Maryland	Md.	Lurie, Mark I. B.A. 1966, Brown University	Md.
Lichtenstein, Marshall H. B.A. 1966, University of North Carolina	Ga.	Lustbader, David B.A. 1965, Grinnell College	N.J.
Lieber, Michael S. B.A. 1967, Michigan State University	N.Y.	Lux, Laurence G. B.S. 1959, University of Wisconsin	Va.
Lieberman, Erik R. B.A. 1967, University of Pittsburgh	Pa.	Lyman, Edward H. B.A. 1965, Sacramento State College	Calif.
Likar, Maya B.A. 1967, Tufts University	Mass.	Lynn, John E. B.A. 1967, University of Oklahoma	Okla.
Linhan, Martin G., Jr. B.A. 1963, Hamilton College	N.Y.	Lynn, Peter J. B.A. 1966, Yale University	Md.
B.E.E. 1965, Rensselaer Polytechnic Institute	Conn.	Lyon, Charles B. B.S. 1967, University of Oklahoma	D.C.
Lipson, Michael H. B.A. 1966, University of Connecticut			
M			
Mackie, Alexander W. B.A. 1967, Claremont Men's College	Oreg.	Margeton, Stephen G. B.A. 1967, Mount St. Mary's College, Md.	N.J.
Macrae, Marion M. B.A. 1967, Sweet Briar College	Va.	Marks, Robert S. B.A. 1966, Brown University	N.Y.
Madden, Raymond H., III B.A. 1965, Louisiana Polytechnic Institute	Va.	Marrus, Alan D. B.A. 1967, Brooklyn College	N.Y.
Maddex, Robert L. B.A. 1965, George Washington University	D.C.	Marshall, George A. B.A. 1962, Hamline University	Md.
Magnone, Joseph R. B.S. 1965, University of Pittsburgh	Va.	Martin, Allan A. B.B.A. 1966, City College, New York	Va.
Mahoney, Thomas F. B.A. 1967, Fordham University	N.Y.	Martin, Roland E., Jr. B.S. 1962, University of Maryland	Md.
Malamud, Leonard J. B.A. in Govt. 1963, M.A. in Govt. 1965, George Washington University	Md.	Martin, Roy I. B.B.A. 1966, Adelphi College	N.Y.
Malandra, Joseph J. B.A. 1962, University of Maryland	Calif.	Marutollo, Frank B.A. 1967, City College, New York	N.Y.
Malasky, Alan R. B.B.A. 1965, University of Pittsburgh	Md.	Massey, Fred H., Jr. B.A. 1965, George Washington University	D.C.
Mangels, Robert E. B.A. 1965, Pennsylvania State University	Md.	Mattingly, James V. B.B.A. 1966, George Washington University	Md.
Mann, John B. B.A. 1967, Duke University	Va.	Matyi, Joseph B.A. 1959, Washington and Jefferson College	Va.
Manoogian, David E. B.A. 1966, Dickinson College	D.C.	M.P.A. 1960, Syracuse University	
Marcus, Richard I. B.A. 1967, University of Pennsylvania	Md.	Matz, Timothy B. B.A. 1966, University of Virginia	D.C.
Marcy, Eric B. B.A. 1966, George Washington University	Va.	May, Alan M. B.A. 1965, George Washington University	Calif.
		Mayfield, William B. B.A. 1966, Yale University	Ga.

Mazor, Leonard M.	N.Y.	Miller, Joel B.	N.Y.
B.A. 1967, Dartmouth College		B.A. 1967, Adelphi University	Mass.
McCaffrey, Robert L., Jr.	Ill.	Miller, Pat H.	
B.A. 1966, Colgate University		B.A. 1961, Mississippi State University	
McCaleb, Marlin R.	Pa.	M.A. 1963, University of North Carolina	Va.
B.A. 1965, Oberlin College		Miller, Paul R.	
McCarthy, John F., III	Va.	B.S. 1960, Kent State University	N.Y.
B.A. 1967, Cornell University		Miller, Warren L.	
McCollum, Douglass J.	D.C.	B.A. 1966, American University	Mich.
B.A. 1967, Duke University		Mills, Roger	
McCoy, Craig S.	Va.	B.S. 1967, University of Wisconsin	N.Y.
B.A. 1965, Pennsylvania State University		Mills, Terence L.	D.C.
McCoy, Lynne H.	D.C.	B.A. 1964, Syracuse University	
B.A. 1966, Goucher College		Millsbaugh, Stephen J.	
McDonald, Charles J.	D.C.	B.A. 1967, American University	N.Y.
B.A. 1965, Oberlin College		Mintz, Herbert H.	
McGarry, Thomas G.	Md.	B.Ch.E. 1966, Cooper Union	Md.
B.A. 1963, Georgetown University		Mones, Bruce E.	
McGiehan, Donn	Md.	B.A. 1967, Franklin and Marshall College	Md.
B.S. in M.E. 1953, Duke University		Montgomery, Frederick L.	
McGrath, William K.	D.C.	B.A. 1962, University of Arizona	
B.A. 1965, Bethany College		M.A. in Govt. 1965, George Washington University	N.Y.
McGreal, Michael J.	Md.	Moore, Paul A.	
B.S. 1959, Iona College		B.A. 1967, Franklin and Marshall College	Maine
M.S. 1960, College of the Holy Cross		Moore, Philip L.	
McLaughlin, John J., Jr.	Md.	B.S. 1967, Bucknell University	Md.
B.S. 1964, U.S. Merchant Marine Academy		Moorehead, Donald V.	
McMillan, Charles B.	Minn.	B.A. 1965, University of Virginia	Md.
B.S. 1967, Princeton University		Morgan, Bruce H.	
McNamara, Harlow J.	Va.	B.A. 1953, Harvard University	
B.S. 1967, Brigham Young University		M.S. 1954, California Institute of Technology	Md.
McNeil, Samuel F.	Va.	Morgan, DeWitt M.	
B.A. 1967, Pennsylvania State College, East Stroudsburg		B.S. (M.E.) 1965, Northwestern University	Va.
Mead, Charles P., Jr.	W.Va.	Morgan, Gregory O.	
B.A. 1958, Brown University		B.A. 1967, George Washington University	Va.
Meade, James F.	Va.	Morgan, Jerold A.	
B.S. 1961, U.S. Coast Guard Academy		B.S. 1956, U.S. Military Academy	Va.
Mednick, Jeffrey S.	Va.	M.B.A. 1960, Northwestern University	
B.S. 1965, Drexel Institute of Technology		Morgan, Paul L.	D.C.
Meisel, Michael S.	Va.	B.S. 1962, Maryland State College, Frostburg	
B.A. 1966, Miami University		Morley, William E.	D.C.
Meissner, William C.	Va.	B.A. 1964, University of Maryland	
B.A. 1961, University of Maine		Morris, Samuel W., Jr.	Ohio
Melvin, John A.	Md.	B.A. 1966, Harvard University	
B.A. 1966, Ohio University		Morton, Reed L.	N.Y.
Méndez, Miguel A.	Texas	B.S. 1966, Ohio State University	
B.A. in Govt. 1965, George Washington University		Moscato, Anthony C.	Va.
Menell, Howard A.	N.Y.	B.A. 1967, Columbia University	
B.A. 1967, Syracuse University		Moser, William R.	Md.
Meredith, Ronald E.	Ky.	B.S. 1967, University of Virginia	
B.A. 1967, Georgetown University		Moss, Ambler H., Jr.	Va.
Merkel, John C.	Wash.	B.A. 1960, Yale University	
B.A. 1965, George Washington University		Moss, Peter J.	Md.
Metscher, Joseph G.	N.Y.	B.A. 1962, Gettysburg College	
B.A. 1965, Fairleigh Dickinson University		Mudd, Richard J.	Va.
Meyer, Barbara A.	Pa.	B.A. 1965, George Washington University	
B.A. 1967, University of Pennsylvania		Mueller, Richard A.	Va.
Meyers, Eric B.	N.Y.	B.A. 1965, Municipal University of Omaha	
B.A. 1965, Trinity College, Conn.		Mulcahy, Robert W.	N.Y.
Miano, Thomas P.	Conn.	B.S. 1963, Boston College	
B.A. 1966, Providence College		Muldoon, Kenneth S.	Va.
Mika, Frank A.	Pa.	B.A. 1966, Brown University	
B.A. 1963, Washington and Jefferson College		Mullins, Dennis P.	N.J.
Miller, Burdall D.	Va.	B.A. 1959, Columbia University	
B.S. 1945, Albright College		Munter, Harold G.	Hawaii
M.S. 1952, Ohio State University		B.A. 1967, Dickinson College	
Miller, Conway D.	Va.	B.A. 1967, Hamilton College	
B.A. 1963, Davis and Elkins College		Murashige, Calvin K.	
Miller, Craig S.	Del.	B.A. 1967, Hamilton College	
B.A. 1967, Duke University		Mylius, Herbert W.	
		B.A. 1960, University of Rochester	

N

Nadzo, Nicholas S. B.A. 1965, Hamilton College	D.C.	Newman, Howard N. B.A. 1956, M.B.A. 1957, Dartmouth College	D.C.
Nakamura, Neil T. B.A. 1966, University of Hawaii	D.C.	M.S. 1959, Columbia University	
Nardi, Henry J. B.A. 1965, Lehigh University	Pa.	Nickel, Henry V. B.A. 1965, University of Virginia	Md.
Nathan, Harvey J. B.A. 1967, Brooklyn College	N.Y.	Nielsen, Kris R. B.S. 1967, Princeton University	Md.
Nauert, Peter W. B.S. 1965, Marquette University	D.C.	Nielsen, Walter W. B.S. 1964, Ohio State University	Ohio
Naveen, Ronald S. B.A. 1967, University of Pennsylvania	Pa.	Nilson, Norman F. B.S. 1965, University of Utah	Va.
Neary, John M. B.S. 1966, C.W. Post College	Va.	Niro, Raymond P. B.S. 1964, University of Pittsburgh	Va.
Nelson, Kenneth B. B.A. 1965, Wayne State University	Mich.	Noble, John B.A. 1961, Juniata College	Md.
Nelson, Paul G. B.A. 1966, Colgate University	N.Y.	Noble, Lawrence F. B.A. 1967, Cornell University	N.Y.
Nelson, Richard C. B.A. 1966, Clark University	Mass.	Noë, Alphonse R. B.Ch.E. 1962, Villanova University	Va.
Nemkov, Peter M. B.A. 1967, University of Michigan	Ill.	M.S. 1964, Oregon State University	
Nesland, James E. B.A. 1966, University of Denver	S.D.	Nolan, James G. B.A. 1965, Georgetown University	Md.
Newendorp, Terry A. B.S. in Ch.E. 1966, Purdue University	Ind.	Nolte, Georgene G. B.A. 1965, Vassar College	Texas
Newman, Alan L. B.S. in E.E. 1965, University of Maryland	Md.	Notopoulos, Joseph J. B.A. 1962, Johns Hopkins University	Conn.
		M.A. 1964, American University	
		Nussbaum, Thomas P. B.A. 1967, Hamilton College	N.Y.

O

Offen, Neil H. B.A. 1965, Queens College, N.Y.	N.Y.	Ontell, David J. B.A. 1967, Rutgers, the State University	Va.
O'Keefe, John J., Jr. B.A. 1965, Fairfield University	Conn.	Oppmann, T. Rodney B.A. 1965, Princeton University	Ohio
O'Keefe, Valerie A. B.A. 1965, Manhattanville College of the Sacred Heart	N.Y.	Orman, John B.S. in I.E. 1963, University of Florida	Va.
Olds, James E. B.S. in M.E. 1960, University of North Dakota	Va.	Orouski, Charles L. B.S. 1959, M.B.A. 1961, Stanford University	Va.
Olexy, Peter D. B.S. in Ch.E. 1965, Pennsylvania State University	Va.	Osborn, William C. B.A. 1966, Princeton University	Pa.
Ollman, Robert C. B.A. 1966, Colgate University	N.Y.	Ostby, Bryn R. B.A. 1964, St. Olaf College	Va.
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P

Pagano, John J. B.A. 1967, Bucknell University	D.C.	Parrett, Sherman O. B.S. 1965, University of Cincinnati	Va.
Page, Max R. B.S. 1965, Drexel Institute of Technology	Va.	Pashkoff, Lionel E. B.A. 1965, University of Maryland	Texas
Palmer, Thomas C. B.A. 1966, Howard University	D.C.	Pass, Robert N. B.A. 1966, Brown University	D.C.
Palumbo, Elaine F. B.A. 1967, George Washington University	Md.	Patton, Robert J., Jr. B.A. 1965, Duke University	Va.
Pansic, Andrew, Jr. B.S. 1963, Northwestern University	D.C.	Paul, Robert E. B.A. 1967, Western Reserve University	Ohio
Pappas, George B.S. 1966, Carroll College, Wis.	Ill.	Paules, Howard S. B.A. 1967, Brown University	Va.
Parachini, Thomas G. B.A. 1966, Michigan State University	N.J.	Peck, Jeffrey A. B.A. 1967, Syracuse University	Va.
Parker, Whilden S. B.G.S. 1960, Louisiana State University	Va.	Pennell, David H. B.E. 1960, University of Alaska	Calif.
Parker, Richard H., Jr. B.A. 1967, University of Houston	Texas	Perkins, Roger A. B.A. 1964, Pennsylvania State University	Mo.
Parkhurst, Roger W. B.S. 1965, Purdue University	Ind.	Perkins, Thomas G. B.A. 1967, Tufts University	Mass.
Parley, Louis I. B.A. 1966, City College, New York	D.C.	Phelps, Edwin L. B.S. 1962, Illinois Wesleyan University	Va.

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B.S. 1961, Pennsylvania State University
Phillips, James H.
B.S. 1965, Ohio State University
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B.A. 1966, Cornell University
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B.A. 1965, Yale University
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B.A. 1965, Providence College
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B.A. 1967, George Washington University
Polk, Robert L.
B.A. 1962, Berea College
Poltrarak, William J.
B.A. 1966, Pennsylvania State University
Ponder, Harry L.
B.A. 1964, University of Arkansas
Poretz, Douglas H.
B.A. 1967, George Washington University

Va. Potter, Alan L.
B.S. 1951, Virginia Polytechnic Institute
D.C. Powell, Stephen E.
B.A. 1967, Franklin and Marshall College
N.J. Preminger, Daniel M.
B.A. 1967, Hunter College
Minn. Price, Donald D.
B.S. 1965, University of Missouri
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B.A. 1964, Southwest Missouri State College
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B.S. 1959, University of Maryland
Va. Pursley, Thomas A., III
B.A. 1966, Colgate University
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B.A. 1963, University of California, Riverside
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B.A. 1965, M.B.A. 1966, Dartmouth College

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Quarton, Charles E.
B.S. 1966, Northwestern University
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B.S. 1963, Georgetown University

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B.A. 1967, Washington University
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B.A. 1965, George Washington University
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B.A. 1965, University of Notre Dame
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Ratzlaff, James W.
B.S. 1958, University of Kansas
Reeves, James N.
B.A. 1967, Dartmouth College
Rego, Anson O.
B.A. 1965, Claremont Men's College
Reising, Gregory S.
B.A. in Govt. 1964, Indiana University
Resnick, Michael A.
B.A. 1965, Brooklyn College
Resnick, Richard M.
B.A. 1966, Fairleigh Dickinson University
Revesz, Joseph M.
B.S. in E.E. 1965, Newark College of Engineering
Reynolds, George T.
B.A. 1967, Wesleyan University
Rice, Michael W.
B.A. 1965, Mount Saint Mary's College, Md.
Richardson, Billy W.
B.S. 1963, U.S. Coast Guard Academy
Richardson, Enos, Jr.
B.A. 1957, Harvard University
Richardson, Mary M.
B.A. 1965, Vassar College
Richardson, Robert L.
B.S. 1964, Texas A&M University
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B.S. (Bus. Adm.) 1965, State University of New York at Buffalo
Richter, Sheldon J.
B.I.E. 1967, Ohio State University
Riley, David P.
B.A. 1964, Middlebury College

Mo. Ririe, James A.
B.S. 1964, Brigham Young University
D.C. Roberts, Joseph R.
B.A. 1962, Pennsylvania State University
Md. M.A. 1967, George Washington University
Robinson, Douglas G.
B.A. 1965, University of Washington
Va. Roddy, John P.
B.S. in F.S. 1967, Georgetown University
Minn. Rogers, Thomas M.
B.A. 1967, George Washington University
Hawaii Rogers, William N.
B.A. in Govt. 1965, George Washington University
Md. University
Rogol, Martin H.
B.A. 1966, University of Cincinnati
N.Y. Rollins, Alton D.
B.S. 1960, American University
N.Y. Rosen, Gerald A.
B.A. 1951, Swarthmore College
Pa. M.A. 1967, Tufts University
N.Y. Rosen, James A.
B.A. 1967, University of Pittsburgh
Ohio Rosen, Mark A.
B.A. 1967, University of Louisville
Pa. Rosenberg, Charles M.
B.A. 1965, Washington and Jefferson College
N.J. Rosenberg, Fern R.
B.B.A. 1966, Ohio University
N.Y. Rosenberg, Frederick W.
B.A. 1967, New York University
Va. Rosenberg, Leonard L.
B.A. 1967, Queens College, N.Y.
Va. Rosenberg, Michael B.
B.A. 1966, Brooklyn College
Va. Rosenfeld, David R.
B.A. 1965, Hofstra University
N.J. Rosenthal, Joel B.
B.A. 1965, University of Massachusetts
Rosemarin, Robert S.
B.A. 1967, University of Pennsylvania

Rothman, Saul A. B.A. 1967, Brown University	Conn.	Rush, Philip H. B.A. 1967, University of Colorado	Colo.
Roy, Howard P. B.A. 1965, Queens College, N.Y.	N.Y.	Russell, Percy H., Jr. B.A. 1963, Dartmouth College	Md.
Royer, Stephen C. B.A. 1966, George Washington University	Mich.	Ruth, Larry L. B.A. 1967, Nebraska Wesleyan University	Mo.
Rubino, Louis J., Jr. B.B.A. 1967, George Washington University	Md.	Rutstein, David B.A. 1966, University of Pennsylvania	Pa.
Rubinstein, Alan I. B.A. 1967, Long Island University	Va.		

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Sachs, Jeremy B.A. 1964, University of Maryland	D.C.	Schneider, Jerold I. B.S. in E.E. 1964, Newark College of Engineering	Va.
Sadler, Henry L., III B.S. 1967, Georgia Institute of Technology	Va.	Schneider, Robert C. B.A. 1967, New York University	N.Y.
Sales, Milton S. B.S. in M.E. 1964, Purdue University	Md.	Schneiderman, Lenore B.A. 1966, Hunter College	Va.
Salomon, Kenneth D. B.A. 1967, Tufts University	Md.	Schreiber, David E. B.A. 1966, University of Virginia	N.J.
Sand, Dolph D. B.S. 1965, Ohio State University	Ohio	Schroeder, Richard W. B.S. 1966, Wisconsin State University	Va.
Sanders, Earl A. B.A. 1967, George Washington University	N.C.	Schumacher, Donald R. B.A. 1965, Colgate University	D.C.
Sandler, David N. B.A. 1967, University of California, Los Angeles	Md.	Schuman, Stuart H. B.A. 1967, University of Pennsylvania	Pa.
Santmire, Glenn F. B.A. 1965, New York University	N.Y.	Schundler, Peter O. B.A. 1965, Princeton University	N.J.
Sapadin, David A. B.A. 1965, Brooklyn College	N.Y.	Schwaab, Richard L. B.S. 1967, University of Wisconsin	Va.
Sapienza, John T., Jr. B.A. 1964, University of Pennsylvania	Md.	Schwab, Kathleen B.A. 1965, Wellesley College	Idaho
Sargent, Richard C. B.S. in F.S. 1960, Georgetown University	Va.	Schwartz, Daniel C. B.A. 1965, Stanford University	D.C.
Saunty, John P., Jr. B.S. 1965, Georgetown University	Wash.	Schwartz, David I. B.C.E. 1966, Pratt Institute	N.Y.
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Schaller, James P. B.A. 1965, Kings College, Pa.	Pa.	Secrest, Lawrence W., III B.A. 1965, American University	Pa.
Schanker, Charles K. B.B.A. 1966, George Washington University	Va.	Seiber, Sherry S. B.A. 1966, Ohio University	Md.
Schatz, Harold B.A. 1967, New York University	N.Y.	Seidel, Lester B. B.A. 1966, University of Michigan	Va.
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Schiff, Richard B. B.A. 1966, University of Michigan	Va.	Semler, Steven R. B.A. 1967, Hunter College	Md.
Schlanger, Michael A. B.A. 1965, Columbia University	N.Y.	Setta, James V. B.A. 1966, University of Maryland	N.J.
Schleman, Walter C., Jr. B.A. 1961, Dartmouth College	N.Y.	Shaljian, Ronald H. B.A. 1965, Franklin and Marshall College	N.Y.
Schmelzer, Henry L. B.A. 1965, University of Maine	Mass.	Shapiro, Elliott C. B.A. 1966, Syracuse University	Pa.
Schneider, Howard B. B.A. 1967, New Jersey State College, Montclair	N.J.	Shay, Edward F. B.A. 1966, Colgate University	Ohio
Schneider, Jeffrey H. B.A. 1966, New York University	N.Y.	Shayne, Stanley H. B.S. 1965, Miami University	Mass.
		Shea, George M. B.A. 1967, Colby College	N.Y.
		Sheinbein, Sol B.E.E. 1963, City College, New York	

Shenk, John E., Jr. B.A. 1958, Pennsylvania State University	Pa.	Snowden, Richard W., III B.S. 1965, Syracuse University	Va.
Sherk, Wilfred B. B.A. 1967, Princeton University	Ill.	Snyder, Alice R. B.A. 1967, Smith College	Va.
Sherwood, Wallace W. B.A. 1966, St. Vincent College	N.Y.	Solitt, James N. B.A. 1967, George Washington University	N.Y.
Sherzer, Harvey G. B.A. 1965, Temple University	Pa.	Solomon, Mark R. B.A. 1967, Ohio State University	Ohio
Siber, Victor B.E.E. 1964, Pratt Institute M.S. 1966, Rensselaer Polytechnic Institute	Va.	Solomon, Richard I. B.A. 1966, University of Michigan	Mich.
Sideman, Robert A. B.A. 1967, University of Michigan	Ill.	Solomon, Robert N. B.A. 1965, University of Florida	Fla.
Siggers, Edward G. B.A. 1966, Oberlin College	Pa.	Sommer, Gerald I. B.A. 1966, American University	Md.
Silber, Barry B.A. 1965, University of Maryland	Md.	Sonnett, John P. B.A. 1962, University of Denver	N.Y.
Silberhartz, Allan B.S. 1967, University of Pennsylvania	N.Y.	Soponis, Mento A. B.A. 1966, Princeton University	Pa.
Silberman, Aaron R. B.B.A. 1967, George Washington University	Pa.	Sorkin, Ira I. B.A. 1965, Tulane University of Louisiana	N.Y.
Siler, John P. B.A. 1966, Yale University	Mich.	Spaeder, Roger C. B.S., B.S. in Ed. 1965, Bowling Green State University	Ohio
Silverman, Joel A. B.E. 1965, City College, New York	N.Y.	Speer, Brownlow M. B.A. 1962, Haverford College	D.C.
Silverman, Ronald J. B.A. 1967, Pennsylvania State University	N.Y.	Spendlove, Larry V. B.S. 1965, Brigham Young University	Va.
Simmons, Dennis E. B.S. 1955, Utah State University of Agriculture and Applied Science	Va.	Spiegel, James A. B.S. 1966, University of Wisconsin	Va.
Simons, Frank S. B.A. 1966, University of Colorado	Va.	Spiegel, Virginia A. B.A. 1966, Mount Holyoke College	Ill.
Sims, Allen B.A. 1965, Idaho State University	Va.	Spivak, Marvin J. B.S. (Electronics) 1964, George Washington University	Md.
Singer, Linda R. B.A. 1963, Radcliffe College	Md.	Spolter, Michael B.A. 1967, Queens College, N.Y.	D.C.
Singman, Thomas M. B.A. 1966, University of Michigan	D.C.	Stanley, Nancy E. B.A. 1964, Knox College	N.J.
Sirkin, Alan L. B.A. 1961, M.B.A. 1965, University of Cincinnati	Md.	Steenland, Peter R., Jr. B.A. 1967, George Washington University	Ohio
Sivitz, William D. B.A. 1965, Northwestern University	Ohio	Steich, Thomas J. B.A. 1966, George Washington University	Del.
Skladany, Barney J., Jr. B.A. 1967, Rutgers, the State University	D.C.	Stein, James C. B.A. 1965, Rollins College	W.Va.
Sklar, Warren A. B.S. 1966, Case Institute of Technology	N.J.	Stein, Robert J. B.A. 1966, Antioch College	Mo.
Skolnick, Alan P. B.A. 1965, Western Reserve University	N.Y.	Stenstrom, Robert B. B.S. in M.E. 1967, University of Washington	Va.
Slade, Grant E. B.A. 1966, New Mexico Highlands University	Va.	Stenzel, Dennis E. B.S. 1967, Brigham Young University	N.Y.
Slobod, Jack D. B.E.E. 1964, City College, New York	Va.	Sterlacci, Michael A. B.A. 1965, Seton Hall University	Md.
Smedley, Jerry M. B.A. 1965, Indiana University	Ill.	Stern, Ronald J. B.S. 1963, City College, New York	Pa.
Smith, Arthur D. B.S. 1965, Utah State University of Agriculture and Applied Science	Md.	Stevenson, Robert H. B.A. 1964, Washington and Jefferson College	Calif.
Smith, Gary A. B.A. 1967, University of Maryland	Md.	Stewart, Hunsdon C. B.A. 1965, University of Oregon	Md.
Smith, Gilbert E. B.B.A. 1955, Wake Forest College	Va.	Stevermark, Paul License in Chemical Sciences 1949, Catholic University of Louvain, Belgium	Conn.
Smith, Harvey Y. B.A. 1967, University of Virginia	Va.	Stien, Barry G. B.A. 1966, Temple University	N.Y.
Smith, Richard D. B.A. 1964, George Washington University	Kans.	Stoller, Andrew R. B.S. 1966, Cornell University	N.Y.
Smith, Robert C. B.A. 1964, Cornell University	Va.	Stolzar, Peter H. B.A. 1966, University of Rochester	Ill.
Smoger, Steven W. B.A. 1965, Pennsylvania State University	N.J.	Stone, Alan J. B.A. 1966, Miami University	N.J.
Snider, Martin J. B.A. 1965, Boston University	Ill.	Stopek, Seth B.A. 1967, Syracuse University	

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B.A. 1967, American University
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B.A. 1967, Wesleyan University
Strachan, Heather
B.A. 1961, Pembroke College
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B.A. 1965, William Smith College
Stuckey, John M., Jr.
B.A. 1961, M.A. 1963, Louisiana State University

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B.A. 1965, George Washington University
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B.A. 1967, George Washington University
D.C. Swanson, Terrance E.
B.A. 1963, Coe College
N.Y. Swift, Stephen J.
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Tania, Ronald J.
B.S. 1960, Western Michigan University
Tarnowski, George
B.A. 1967, Franklin and Marshall College
Tarring, Henry W.
B.Ch.E. 1959, Rensselaer Polytechnic Institute
Tate, James R.
B.Ch.E. 1965, Georgia Institute of Technology
Tavel, James W.
B.A. 1967, George Washington University
Taylor, Dennis H.
B.A. 1966, Colgate University
Taylor, Martin G., III
B.S. 1964, Eastern Kentucky University
Teague, Randal C.
B.A. 1967, American University
Teck, Bruce J.
B.S. 1957, University of North Carolina
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B.A. 1967, City College, New York
Teaser, Lewis F.
B.A. 1967, Queens College, N.Y.
Thomas, Donald W.
B.S. 1953, University of Iowa
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B.A. 1965, College of William and Mary
Thomas, Lynn E.
B.A. 1961, Idaho State University
Thomas, William R., II
M.S. 1962, Boston University
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Va. Thompson, James A., Jr.
B.A. 1962, University of Pennsylvania
Md. Thorpe, David M.
B.A. 1967, Dartmouth College
N.Y. Tignor, Robert S.
B.A. 1965, Howard University
Va. Tish, Ronald I.
B.A. 1966, Brooklyn College
N.Y. Tobias, Donald J.
B.A. 1967, Queens College, N.Y.
Va. Tobias, Robert M.
B.A. 1965, University of Michigan
D.C. Tomar, Richard T.
B.A. 1967, University of Colorado
Va. Toth, Victor J.
B.S. in M.E. 1966, Ohio University
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M.B.A. 1963, University of North Carolina
Calif. Trifon, Malcolm R.
B.A. 1965, Occidental College
Md. Tripp, Elizabeth M.
B.A. 1964, Trinity College, D.C.
Conn. Trombley, Wilson J.
B.A. 1966, Fairfield University
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B.A. 1962, Yale University
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B.A. 1966, Princeton University
Ga. Turner, Thomas A.
B.E.E. 1964, Georgia Institute of Technology
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B.S. 1967, American University
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Wallace, Robert B.	Md.	Wetherell, Michael E.	
B.A. 1966, George Washington University		B.S. 1967, University of Idaho	Md.
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Walma, Kenneth D.	Va.	White, Floyd W., Jr.	
B.A. 1962, University of Michigan		B.S. 1959, U.S. Coast Guard Academy	Va.
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B.E.E. 1962, City College, New York		B.A. 1966, DePauw University	Nev.
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B.A. 1961, University of Oklahoma		B.A. 1967, Harvard University	Md.
Warren, Tonita M.	D.C.	Whiteside, Tyson W.	
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Warshof, Douglas A.	N.Y.	Wicker, Jere C.	
B.A. 1966, Boston University		B.E.E. 1965, Georgia Institute of Technology	Ohio
Watanabe, Jeffrey N.	Hawaii	Widlitz, Lynne J.	
B.A. 1965, University of California, Berkeley		B.S. 1962, Miami University	Ohio
Waters, Timothy J.	Calif.	Wiener, Mark R.	
B.S. 1965, University of San Francisco		B.A. 1967, Wesleyan University	Va.
Watson, John G., II	N.J.	Wigert, John W., Jr.	
B.A. 1965, Wesleyan University		B.S.E. 1965, Princeton University	N.J.
Webb, George D., II	Va.	Wilgus, George, III	
B.A. 1965, Michigan State University		B.A. 1966, Princeton University	Va.
Weber, George L.	Va.	Wilks, Van C.	Conn.
B.A. 1966, South Dakota State University		B.S. 1963, University of Missouri	
Wechsler, Lawrence H.	N.Y.	Willard, Sherwood S.	N.Y.
B.S. 1967, Pennsylvania State University		B.A. 1966, University of Virginia	
Weill, Jay R.	Md.	Wille, Paul F.	
B.A. 1967, University of Michigan		B.S. 1964, Le Moyne College, N.Y.	Va.
Weinberg, Alan V.	N.J.	Williams, Wade S.	Md.
B.B.A. 1967, Ohio University		B.A. 1963, University of the South	
Weinberg, Richard N.	N.Y.	Williamson, Thomas F.	D.C.
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Weinberg, Stanley M.	Va.	Wilson, Carole L.	Va.
B.S. in E.E. 1964, Drexel Institute of Technology		B.A. 1965, Vassar College	
Weinberger, Alan D.	N.Y.	Wilson, John F., III	D.C.
B.A. 1967, New York University		B.A. 1962, Colgate University	
Weinberger, Lorraine A.	Md.	Winder, John S.	D.C.
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Weiser, Steven S.	N.Y.	Wisnovsky, George A.	Md.
B.A. 1967, Queens College, N.Y.		B.A. 1965, Seton Hall University	
Weisfuse, Martin H.	N.Y.	Witmer, John H., Jr.	Va.
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Weiss, Donald S.	N.Y.	Wolff, Bennett A.	Va.
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Weiss, Howard I.	N.Y.	Wolff, Sue A.	Pa.
B.S. 1967, Cornell University		B.A. 1961, Trinity College, D.C.	
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B.A. 1967, Western Reserve University		B.A. 1967, University of Pennsylvania	
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B.S. 1962, University of Southern California		B.A. 1965, Washington and Jefferson College	
		Wright, James R.	
		B.S. 1966, Ohio State University	N.Y.

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Abshire, John P. B.A. 1947, University of Chattanooga LL.B. 1949, Vanderbilt University LL.M. 1952, George Washington University	Tenn.	Anderson, William D. B.S. 1960, M.S. 1962, Virginia Polytechnic Institute LL.B. 1965, Washington and Lee University	Va.
Ake, Charles P. B.S. 1955, Villanova University LL.B. 1963, George Washington University	Va.	Ashlock, Larry I. LL.B. 1959, University of Iowa	Md.
Amato, Richard G. B.A. 1964, Georgetown University LL.B. 1967, George Washington University	Md.	Augustine, John L. B.A. 1954, LL.B. 1960, University of Arizona	Ariz.

B

Babin, Philip L. B.A. 1962, Lehigh University LL.B. 1965, Cornell University	Va.	Ballard, Daniel F. B.S. 1954, Syracuse University LL.B. 1967, University of Florida	Md.
Baker, Dorsey L. B.S. 1959, U.S. Military Academy LL.B. 1966, Southern Methodist University	Va.	Borrego, Arnoldo G. B.S. 1952, Florida State University Licentiate of Law 1956, Doctor of Laws 1960, University of Havana, Cuba	D.C.
Baker, Gerald C. B.S. 1958, Marquette University LL.B. 1961, University of Wisconsin	Md.	Bowytz, Robert B. B.S. 1959, Pennsylvania State University LL.B. 1962, University of Pittsburgh	Md.
Barbieri, Michele J.D. 1965, University of Pisa, Italy LL.B. 1965, DePaul University	Va.	Bradley, John M. J.D. 1965, University of Utah	Va.
Barnett, William B. LL.B. 1965, DePaul University	Ill.	Bravo, Leonardo L. Doctor of Laws 1942, University of Havana, Cuba	Md.
Bateman, Robert E. B.A. 1957, Brigham Young University J.D. 1965, American University	Idaho	Brewer, Charles M. B.A. 1964, Pennsylvania State University LL.B. 1967, George Washington University	Pa.
Becker, Richard S. B.A. 1964, Miami University J.D. 1967, University of Michigan	D.C.	Browning, George, III B.S. 1961, Central Missouri State College J.D. 1965, University of Missouri	Fla.
Bednar, Richard J. LL.B. 1954, Creighton University B.B.A. 1962, Notre Dame University	Md.	Broxton, Robert R. B.A. 1960, The Citadel LL.B. 1964, University of Alabama	Md.
Belefante, Carmen P. LL.B. 1965, Dickinson School of Law B.S. 1964, University of Missouri	Va.	Bunn, Edward D. LL.B. 1965, Stetson University	Va.
Bercovici, Martin W. LL.B. 1967, New York University	Nebr.	Burroughs, Charles E. B.S. 1962, LL.B. 1965, University of Wisconsin	Wis.
Berkowitz, Lawrence J. B.S. 1962, Wagner College LL.B. 1965, Brooklyn Law School	Md.		

C

Camp, Robert H. B.S. 1960, Mount St. Mary's College, Md. LL.B. 1964, University of Maryland	Md.	Campbell, Hugh D. B.B.A. 1959, McMurray College LL.B. 1962, Southern Methodist University	Va.
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- Cantieri, Thomas B. Va. B.A. 1956, University of North Carolina
LL.B. 1961, University of Virginia
- Carlin, Nicholas W. Va. B.A. 1958, J.D. 1967, University of Louisville
- Case, Gloria L. Wis. B.S. 1964, J.D. 1967, Marquette University
- Cash, Edwin Va. LL.B. 1942, Catholic University of America
B.A. 1954, University of Arkansas
B.S. 1967, American University
- Chabrow, Penn B. Pa. B.S. 1960, Muhlenberg College
LL.B. 1963, George Washington University
- Chappell, Henry C. Va. B.S. 1964, LL.B. 1965, University of Alabama
- Charla, Leonard F. N.Y. B.A. 1962, Iona College
LL.B. 1965, Catholic University of America
- Charno, Steven M. Mo. B.A. 1963, University of Chicago
J.D. 1967, Georgetown University
- Chase, Robert L. Va. B.A. 1963, University of New Hampshire
LL.B. 1966, St. John's University, N.Y.
- Chen, Edward W. Md. B.A. 1955, National Taiwan University
M.A. 1957, National Cheng-chi University, Taiwan
M.C.L. 1965, Southern Methodist University
M.C.P. 1967, Virginia Polytechnic Institute
- Chiang, Dean T. Taiwan LL.B. 1966, National Cheng-chi University.
- Chopin, Lonny F. Va. B.B.A. 1963, LL.B. 1966, Loyola University, La.
- Church, Dale W. Va. B.S. 1962, Oregon State University
LL.B. 1967, George Washington University
- Cohen, Arnold G. Md. B.S. 1963, University of Pennsylvania
LL.B. 1966, Georgetown University
- Conrad, Paul R. Va. B.S. 1949, University of Kansas
LL.B. 1952, George Washington University
- Corbett, John J., Jr. D.C. Ph.B. 1961, Catholic University of America
LL.B. 1966, Georgetown University
- Costa, Thomas J., Jr. N.J. B.A. 1964, Roanoke College
LL.B. 1967, Catholic University of America
- Crates, James L. Va. B.S. 1962, J.D. 1965, Ohio Northern University
- Cube, Bienvenido M. Va. Litt.B. 1956, University of Santo Tomas, Philippines
LL.B. 1961, San Beda College, Philippines
M.Comp. L. 1963, George Washington University

D

- Daines, William K. Va. B.S. 1957, LL.B. 1960, University of Utah
- Deleon, Joselito B. Va. LL.B. 1966, Ateneo de Manila University, Philippines
- Delp, Dewain L. D.C. LL.B. 1939, Washburn University of Topeka
- Depassalacqua, John L. Va. B.A. 1961, University of Puerto Rico
LL.B. 1964, Catholic University of Puerto Rico
LL.M. 1965, George Washington University
- Determan, Sara-Ann H. Va. B.A. 1960, University of Delaware
LL.B. 1967, George Washington University
- Dhillon, Dharam P. Md. B.A. 1949, M.A. 1951, LL.B. 1954, Panjab University, India
- Dicello, Francis P. Conn. B.A. 1964, Notre Dame University
LL.B. 1966, Fordham University
- Djojodipoero, Soerastri J. Indonesia LL.M. 1960, Gadjah Mada University, Indonesia
- Dorkin, Frederic E. Va. B.A. 1953, Dartmouth College
LL.B. 1956, Duke University
- Dray, William P. Md. B.S. 1962, J.D. 1964, University of Wyoming
- Dusberger, Roger H. Va. B.S. 1964, J.D. 1966, University of Illinois
- Dwelle, John R. Va. B.S. 1957, Case Institute of Technology
LL.B. 1962, Cleveland-Marshall Law School of Baldwin-Wallace College

E

- Edles, Gary J. N.Y. B.A. 1962, Queens College, N.Y.
LL.B. 1965, New York University
LL.M. 1966, George Washington University
- Eliassen, Gary R. Idaho B.S. 1962, Colorado State University
LL.B. 1965, University of Washington
- Elliott, William P., Jr. Tenn. B.A. 1958, Vanderbilt University
LL.B. 1961, University of Virginia

F

- Feeney, Dena C. N.Y. B.A. 1960, Le Moyne College, N.Y.
LL.B. 1963, Catholic University of America
- Feigin, Stephen P. Md. B.A. 1963, Johns Hopkins University
LL.B. 1966, Cornell University
- Feldman, Robert H. Philippines B.S. in B.A. 1963, M.Acct., LL.B. 1966, University of Arizona
- Felizmena, Romulo C. Philippines LL.B. 1951, Ateneo de Manila University,

Felton, Joseph M.
B.B.A. 1957, St. John's University, N.Y.
LL.B. 1963, Georgetown University
Fernandez, Jorge
S.J.D. 1952, University of Havana, Cuba
Ferrell, Donald G.
LL.B. 1962, Cumberland University
Fields, Gordon B.
B.A. 1962, Reed College
LL.B. 1965, University of Oregon
Fischbach, Daniel S.
B.A. 1964, Northeastern University
J.D. 1967, Georgetown University
Fisher, Richard S.
B.S. 1959, Pennsylvania State University
LL.B. 1962, Cornell University

Md. Flynn, Charles F. Mass.
B.E.E. 1962, LL.B. 1965, Catholic University
of America
Va. Fogel, Richard A. Md.
B.B.A. 1963, LL.B. 1966, University of Texas
Va. Freedman, Jay W. Md.
B.A. 1964, Williams College
Va. LL.B. 1967, Yale University
Fritchman, Vernon N. Md.
B.S. 1961, Bucknell University
Md. LL.B. 1964, Dickinson School of Law
Fromme, David K. Kans.
B.A. 1962, J.D. 1965, Washburn University
of Topeka
Va.

G

Gallagher, Richard J.
Ph B. 1937, College of the Holy Cross
LL.B. 1940, Harvard University
Galvin, Francis J.
B.S. 1964, Fordham University
LL.B. 1968, Georgetown University
Garrison, William M.
B.A. 1961, University of Virginia
LL.B. 1965, Washington and Lee University
Gass, Edward W.
B.A. 1958, LL.B. 1961, Syracuse University
Ging, Thomas F.
B.A. 1963, John Carroll University
LL.B. 1966, Georgetown University

Md. Gins, Richard H. Md.
B.A. 1964, University of North Carolina
LL.B. 1967, George Washington University
Ind. Goldberg, Jack G. N.Y.
B.B.A. 1964, LL.B. 1967, George Washington
University
Va. Goldstein, Jack C. Md.
B.S. in M.E. 1964, Purdue University
J.D. 1968, George Washington University
N.Y. Grabowsky, Fred Va.
B.S. 1949, U.S. Naval Academy
Va. LL.B. 1958, Boston College
Grobman, William N.J.
B.S. in E.E. 1944, Rutgers, the State
University
LL.B. 1952, George Washington University

H

Haddock, Donald M.
B.A. 1963, Princeton University
LL.B. 1966, University of Virginia
Hagen, Gordon H.
B.A. 1957, St. Olaf College
LL.B. 1965, George Washington University
Hagihara, Yasuhiro
LL.B. 1961, Keio University, Japan
Hartman, Martin P.
B.A. 1959, Columbia University
LL.B. 1964, Georgetown University
Hasselman, Harry E., Jr.
B.A. 1963, Boston College
LL.B. 1966, Fordham University
Heise, Arthur C., Jr.
B.S. 1949, LL.B. 1952, University of Maryland
Hendrick, David R., Jr.
B.A. 1965, LL.B. 1967, Baylor University
Henneberger, Lawrence F.
B.B.A. 1960, LL.B. 1962, Loyola University, La.
Herman, Gary A.
B.B.A. 1964, University of Texas
LL.B. 1967, Southern Methodist University
Hill, Frank D.
B.B.A. 1963, University of Oklahoma
LL.B. 1966, University of Texas

Va. Hill, Robert B. Md.
B.A. 1957, Harvard University
LL.B. 1960, Columbia University
D.C. Hoag, Willard E. D.C.
B.S. 1943, M.S. in Ch.E. 1947, University
of Southern California
D.C. LL.B. 1962, Southwestern University, Calif.
Va. Holt, Shirley W. Va.
B.A. 1957, Tulane University of Louisiana
J.D. 1966, American University
Va. Hoover, Roger K. Va.
B.A. 1964, LL.B. 1965, Rutgers, the State
University
Ohio Horwood, Richard M. Ohio
B.A. 1962, Colgate University
LL.B. 1965, University of Pennsylvania
Va. Hunter, Nancy A. Va.
B.S. 1959, University of Colorado
J.D. 1967, Georgetown University
Md. Hutchinson, Philip A. Md.
B.A. 1962, University of Maine
LL.B. 1965, Georgetown University
Va. Hyland, Gerald W. Va.
B.S. 1959, College of the Holy Cross
LL.B. 1962, Georgetown University

N.Y. Ivins, Steven D. Va.
B.S. 1959, LL.B. 1962, University of
Pennsylvania

I

Irwin, David M.
B.A. 1962, Wesleyan University
LL.B. 1965, Harvard University

J

Jacobs, Howard S.	Va.	Jeristrom, Bernard J.	Va.
B.S. in C.E. 1964, University of Vermont		B.A. 1958, Duke University	
LL.B. 1967, George Washington University		LL.B. 1964, University of Miami	Va.
Jeffrey, Joseph D.	Md.	Johnston, Albert M., Jr.	Tenn.
B.S. 1941, U.S. Naval Academy		B.S. 1963, Michigan State University	
B.S. in Ae.E. 1950, U.S. Naval Postgraduate School		LL.B. 1966, University of Minnesota	
M.M.E. 1951, Rensselaer Polytechnic Institute		Jurecka, James R.	
LL.B. 1964, George Washington University		B.A. 1957, Rice University	
		LL.B. 1965, George Washington University	

K

Kagan, Gerald B.	Va.	Kelly, John T.	Va.
B.A. 1964, University of Massachusetts		B.A. 1954, St. Ambrose College	
LL.B. 1967, George Washington University		LL.B. 1959, Creighton University	Ab.
Kantorow, Gerald S.	Md.	Kempaner, Richard A.	Md.
B.S. 1950, University of Maryland		B.A. 1960, LL.B. 1962, University of Alabama	
LL.B. 1955, Georgetown University		Koehler, Lee N.	
Keen, William H.	Pa.	B.A. 1961, Gettysburg College	Mo.
Ph.B. 1943, Dickinson College		LL.B. 1965, University of Maryland	
LL.B. 1949, Dickinson School of Law		Kohnen, James L.	
Kesing, Wouter	Md.	B.S. in C.E. 1963, J.D. 1966, University of Missouri	D.C.
B.A. 1964, Gettysburg College		Kovey, Mark H.	
J.D. 1967, Georgetown University		B.A. 1964, Columbia University	Va.
Keightley, James J.	Va.	LL.B. 1967, New York University	
B.A. 1964, Villanova University		Kramer, Kenneth S.	
LL.B. 1964, Cornell University		B.S. 1963, University of Wisconsin	
		LL.B. 1966, Harvard University	

L

Leftwich, Willie L.	D.C.	Light, Ivan I.	D.C.
B.S. in E.E. 1960, Howard University		B.A. 1964, State University of New York at Binghamton	
LL.B. 1967, George Washington University		LL.B. 1967, George Washington University	Va.
Leiner, Charles P.	Md.	Linder, Robert D.	
B.S. 1951, San Diego State College		B.A. 1954, J.D. 1959, University of Iowa	Min.
LL.B. 1967, George Washington University		M.B.A. 1961, Harvard University	Miss.
Lemann, Arthur A., III	La.	B.S. 1963, J.D. 1965, University of Mississippi	
B.A. 1964, Tulane University of Louisiana		Locke, Richard F.	
LL.B. 1967, Loyola University, La.		B.S. in B.A. 1962, LL.B. 1965, Boston College	Ariz.
Levy, Lawrence	Va.	Lynch, Robert S.	Va.
B.A. 1963, University of Pennsylvania		B.A. 1961, LL.B. 1964, University of Arizona	
LL.B. 1966, Boston University		Lynch, William C.	N.Y.
Lewis, Walter L.	Va.	B.A. 1953, LL.B. 1956, Boston College	
B.A. 1947, LL.B. 1950, University of Virginia		Lynn, Theodore S.	
Lieblch, Sharon W.	Va.	B.A. 1958, Columbia University	
B.A. 1963, Barnard College		LL.B. 1961, Harvard University	
LL.B. 1966, Harvard University		LL.M. 1962, New York University	

M

Machida, Junichi	Japan	Malech, Robert L.	Md.
LL.B. 1962, Chuo University, Japan		B.A. 1961, Cornell University	
Madani, Mohammed O.	D.C.	LL.B. 1964, Boston University	D.C.
Licene in Droit 1961, Cairo University, Egypt		Manfreda, Richard H.	
M.A. 1966, American University		B.S. in B.A. 1963, Georgetown University	D.C.
Maddin, Richard J.	D.C.	J.D. 1966, American University	
B.A. 1964, Michigan State University		Marks, Herbert E.	Va.
J.D. 1967, University of Detroit		B.A. 1957, University of Michigan	
Mahan, David L.	Md.	LL.B. 1960, Yale University	
B.A. 1963, University of Kentucky		Mariar, Richard L.	
LL.B. 1966, Indiana University		B.S. 1956, University of Oklahoma	
		LL.B. 1963, American University	

Martinez, Jose L. Licenciado en Derecho, University of Nuevo Leon, Mexico	D.C.	Monzack, Melvyn I. B.S. 1962, University of Rhode Island LL.B. 1965, George Washington University	R.I. Va.
Mazaroff, Stanley G. B.A. 1960, LL.B. 1965, University of Maryland	D.C.	Morrow, John F. B.B.A. 1962, LL.B. 1965, Wake Forest College	
McDonald, Bruce L. B.A. 1963, LL.B. 1966, Harvard University	Md.	Moss, Frederick E. B.A. 1961, Rice University LL.B. 1964, University of Mississippi	Md.
McGlynn, Joseph H. B.M.E. 1962, LL.B. 1965, Villanova University	D.C.	Mueller, Charles G. B.S. 1963, Fordham University J.D. 1966, Georgetown University	N.J. Va.
McGuire, James F. LL.B. 1965, DePaul University	D.C.	Mullins, Donald H. B.S. 1965, Iowa State University of Science and Technology LL.B. 1967, University of Tennessee	
McKay, Jack G. LL.B. 1953, Mercer University	Va.	Murphey, John J. B.S. 1958, Lehigh University J.D. 1967, University of Akron	Md.
Meer, Eugene H. B.A. 1964, St. Lawrence University LL.B. 1967, George Washington University	N.Y.	Murphy, David R. B.Ch.E. 1957, Rensselaer Polytechnic Institute LL.B. 1966, George Washington University	Va. D.C.
Miller, George W. B.A. 1964, Princeton University LL.B. 1966, Harvard University	N.Y.	Murray, Brenda P. B.A. 1960, D'Youville College LL.B. 1963, Boston University	
Miller, John M. B.A. 1959, LL.B. 1962, West Virginia University	W.Va.		
Mofsky, James S. B.A. 1956, Wesleyan University LL.B. 1959, LL.M. 1966, Cornell University	Fla.		
N			
Nauheim, Stephen A. B.S. 1964, University of North Carolina J.D. 1967, Georgetown University	Va.	Ney, Richard J. B.A. 1964, Duke University LL.B. 1967, George Washington University	D.C.
Negron, Victor H. B.A., LL.B. 1956, St. Mary's University of San Antonio	Md.	Noland, Richard P. B.A. 1965, LL.B. 1966, University of Texas	Va.
Nerenberg, Roy B.S. 1959, University of Pennsylvania LL.B. 1962, Temple University	Md.	Normand, Carlton T. B.A. 1963, University of Texas LL.B. 1964, Baylor University	Va.
O			
O'Connell, John J., Jr. B.S. 1956, University of Scranton LL.B. 1960, Catholic University of America	Md.	Osteen, William L., Jr. B.A. 1961, Tulane University of Louisiana LL.B. 1964, Vanderbilt University	Va.
P			
Pachter, John S. B.A. 1963, Tulane University of Louisiana LL.B. 1966, George Washington University	Miss.	Pineo, Paul B.A. 1963, Colby College LL.B. 1966, Georgetown University	Va.
Palmer, William R. B.A. 1956, LL.B. 1958, University of Illinois	Va.	Plotkin, Robert H. B.S. in E.E. 1964, University of Pennsylvania J.D. 1967, American University	Mass.
Palotay, Olga C. Diploma in Jurisprudence 1951, Eotvos Lorand University, Hungary M.S. 1962, University of North Carolina	Md.	Polumbus, Gary M. B.S. 1964, J.D. 1967, University of Colorado	Va.
Paskoff, Martin B.A. 1959, Brooklyn College LL.B. 1962, Brooklyn Law School	D.C.	Powell, Stephen J. B.A. 1964, J.D. 1966, University of Florida	Fla.
Pela, Kenneth A. B.S.C. 1958, Spring Hill College LL.B. 1962, University of Mississippi	Md.	Prince, Marion R. B.S. 1963, University of Illinois LL.B. 1966, George Washington University	Ind. Va.
Perry, Courtland D., II LL.B. 1961, University of Virginia	Va.	Pruellage, John K. B.A. 1962, St. Louis University J.D. 1965, University of Missouri	
Q			
Quinlan, Joseph M. B.S.S. 1963, Fairfield University LL.B. 1966, Fordham University	N.Y.		

R

Rabe, Raul C. B.A. 1960, University of Santo Tomas, Philippines LL.B. 1964, Ateneo de Manila University, Philippines	D.C.	Reilly, Michael A. B.A. 1962, Syracuse University LL.B. 1965, University of Miami	NY
Rader, James K. B.A. 1961, Trinity College, Conn. LL.B. 1964, Drake University	Va.	Reilly, Thomas W. B.A. 1954, LL.B. 1956, St. John's University, N.Y.	Pa.
Ranney, John C. B.A. 1952, College of the Holy Cross LL.B. 1957, Georgetown University	Va.	Reynolds, John C. B.A. 1963, Ursinus College LL.B. 1966, Columbia University	Va.
Raymond, Odette J. Graduation 1958, College of Law, University of Baghdad, Iraq	D.C.	Robblee, Paul A. B.A. 1931, Carleton College LL.B. 1935, Minnesota College of Law	Va.
Reale, Ulrico LL.B. 1963, John Marshall Law School LL.M. 1966, George Washington University	Ill.	Roessler, Ronald J. B.A. 1961, Miami University J.D. 1964, University of Wisconsin	Va.
Redfield, Jared C. B.S. 1963, University of Wisconsin LL.B. 1966, Georgetown University	Wis.	Romeo, Peter J. B.S. in B.A. 1964, Georgetown University LL.B. 1967, George Washington University	Va.
Reese, John H. B.B.A., LL.B. 1954, Southern Methodist University LL.M. 1965, George Washington University	Texas	Ruprecht, John J. B.A. 1962, Claremont Men's College LL.B. 1965, Stanford University	

S

Sanders, William A. LL.B. 1957, University of Alabama	Va.	Sheridan, James A. B.S. 1964, Marquette University J.D. 1967, DePaul University	D.C.
Santman, Leon D. B.S. 1952, U.S. Coast Guard Academy LL.B. 1963, University of Houston	Md.	Snider, Ronald R. B.S. in E.E. 1960, Purdue University LL.B. 1963, University of Michigan	Md.
Schaeffer, John N. B.B.A. 1963, University of Oklahoma LL.B. 1966, University of Texas	Md.	Somers, Edward W. B.E. 1953, M.S. 1955, Johns Hopkins University	
Schiff, Joel P. B.A. 1963, LL.B. 1965, Cornell University	Va.	LL.B. 1967, George Washington University	Md.
Seifman, Donald H. B.A. 1964, New York University LL.B. 1967, George Washington University	N.Y.	Springel, Barry L. B.S. 1964, Drexel Institute of Technology J.D. 1967, University of Michigan	D.C.
Seiger, Joseph R. B.A. 1964, University of Pittsburgh J.D. 1967, University of Michigan	N.Y.	Stadelman, H. James, III B.S. in Ed. 1962, M.B.A. 1965, J.D. 1967, University of Florida	Va.
Shallal, Suham LL.B. 1959, University of Baghdad, Iraq	Iraq	Steinbach, Robert M. B.B.A. 1962, Tulane University of Louisiana LL.B. 1965, Boston College	Va.
Shapiro, Charles E. B.S. 1960, University of Maryland LL.B. 1963, George Washington University	D.C.	Suchanek, Leonard B.S. 1958, LL.B. 1962, Creighton University LL.M. 1967, George Washington University	
Shaw, Russell C. B.S. in B.A. 1962, LL.B. 1965, Ohio State University	Ohio		

T

Tankel, Jerome K. B.A. 1957, University of Illinois LL.B. 1963, Harvard University	Va.	Tully, John L., Jr. B.B.A. 1953, Siena College LL.B. 1961, Catholic University of America	Va.
Tomeo, Richard W. B.A. 1963, LL.B. 1966, University of Connecticut	Va.	Tun, Oung M. B.A. 1956, LL.B. 1960, University of Rangoon, Burma	
Trocki, Daniel B. B.S. 1954, Pennsylvania State College, Bloomsburg LL.B. 1957, Temple University	Va.		

U

Urbach, Herbert S. B.A. 1958, Middlebury College LL.B. 1961, University of Virginia	Va.
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V

Vassanelli, Clement M.
B.A. 1963, Duquesne University
J.D. 1963, Western Reserve University

Pa. Vazquez, Pedro R. D.C.
B.S. 1957, U.S. Naval Academy
LL.B. 1964, University of Puerto Rico

W

Wagner, Richard B.
B.A. 1961, LL.B. 1964, Notre Dame
University

Va. Wilken, William J. Va.
B.A. 1949, University of Iowa

Wallach, Frederick E.
B.A. 1959, Williams College
LL.B. 1962, Harvard University

Md. Wille, Paul A. D.C.
B.A. 1956, Lake Forest College

Walsh, Charles S.
B.S. 1964, University of Maryland
LL.B. 1967, George Washington University

Md. Williams, Martha G. Va.
B.S. 1964, Randolph-Macon Woman's College

Watkins, Linda L.
B.A. 1963, Mary Washington College of the
University of Virginia

Va. Williams, Ray R., Jr. Va.
B.A. 1963, Furman University

Weiss, Anton M.
B.A. 1964, State University of New York
at Binghamton

N.Y. Williamson, James A. Md.
LL.B. 1952, Boston University

Welch, Gerard S., Jr.
B.S. 1957, Seattle University
LL.B. 1967, Catholic University of America

Va. Wirtzman, Paula R. Pa.
B.A. 1963, Sweet Briar College

Wenker, Paul F.
B.S. 1964, Xavier University
J.D. 1967, Georgetown University

Ohio Wise, Thomas D. N.C.
B.A. 1961, LL.B. 1964, University of South
Carolina

West, Luther C.
B.A. 1948, Birmingham-Southern College
LL.B. 1950, George Washington University

Ala. Wold, Douglas J. D.C.
B.S. 1963, LL.B. 1965, University of Montana

Wheeler, Matthew J.
B.S. 1961, Loyola University, Ill.
LL.B. 1964, John Marshall Law School

Va. Wolf, John H. D.C.
B.B.S. 1961, LL.B. 1964, University of
Minnesota

Wilder, Roland P., Jr.
B.A. 1963, Washington and Jefferson
College

Va. Woodruff, Frederick C., Jr. Va.
B.A. 1959, Colgate University

Wiles, Ernest F.
B.S. 1940, University of Kansas
LL.B. 1943, Yale University

Md. Wright, James W. Tenn.
B.S. 1963, M.S. 1964, LL.B. 1966,
University of Tennessee

Zack, Thomas
B.S. 1960, New York University
LL.B. 1963, American University

Md. Wright, John W. D.C.
LL.B. 1950, University of Miami

Zdravkovic, Dusan
LL.B. 1962, Belgrade University, Yugoslavia

Ind. Wynn, Garrett N. Ind.
B.A. 1957, University of Notre Dame
LL.B. 1962, Catholic University of America

Va. Zegrea, Nick G. Md.
B.S. in I.E. 1959, LL.B. 1962, West Virginia
University

Institutions in Which Law Center Students Earned Degrees*

Adelphi College	2	American University	29
Akron, University of	1	Amherst College	1
Alabama, University of	4	Antioch College	1
Alaska, University of	1	Arizona State University	1
Albright College	1	Arizona, University of	5
Alfred University	2	Arkansas, University of	3

* Figures represent students registered spring semester 1968.

Ateneo de Manila University, Philippines	3	Columbia University	12
Baghdad, University of, Iraq	2	Connecticut, University of	5
Barnard College	2	Cooper Union	2
Baylor University	2	Cornell University	20
Belgrade University, Yugoslavia	1	Creighton University	3
Beloit College	1	Cumberland University	1
Berea College	1	Dartmouth College	14
Bethany College	1	Davis and Elkins College	1
Birmingham-Southern College	1	Dayton, University of	1
Boston College	7	Delaware, University of	3
Boston University	10	Denison University	3
Bowling Green State University	2	Denver, University of	4
Brandeis University	3	DePaul University	1
Brenau College	1	DePauw University	2
Bridgeport, University of	1	Detroit, University of	6
Brigham Young University	20	Dickinson College	3
Brooklyn College	26	Dickinson School of Law	2
Brooklyn Law School	2	Drake University	1
Brown University	10	Drew University	10
Bucknell University	8	Drexel Institute of Technology	11
C.W. Post College	1	Duke University	2
Cairo University, Egypt	1	Duquesne University	1
California Institute of Technology ..	1	D'Youville College	1
California State College at Long Beach	1	Eastern Kentucky University	1
California, University of, Berkeley ..	4	Eotvos Lorand University, Hungary	3
California, University of, Los Angeles	1	Fairfield University	3
California, University of, Riverside ..	1	Fairleigh Dickinson University	1
Carleton College	2	Fisk University	1
Carnegie Institute of Technology ..	4	Florida Southern College	8
Carroll College, Wis.	1	Florida State University	7
Case Institute of Technology	3	Florida, University of	9
Catholic University of America	12	Fordham University	1
Catholic University of Louvain, Belgium	1	Franklin and Marshall College	1
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Cleveland-Marshall Law School of Baldwin-Wallace College	1	Harvard University	1
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Illinois Wesleyan University	1	Morningside College	1
Indiana University	4	Mount Holyoke College	4
Iona College	2	Mount Mercy College, Pa.	1
Iowa State University of Science and Technology	1	Mount St. Mary's College, Md.	4
Iowa, University of	4	Muhlenberg College	1
John Carroll University	1	National Cheng-chi University, Taiwan	2
John Marshall Law School	2	National Taiwan University	1
Johns Hopkins University	6	Nebraska, University of	1
Juniata College	3	Nebraska Wesleyan University	2
Kalamazoo College	1	Nevada, University of	3
Kansas, University of	7	New Hampshire, University of	2
Keio University, Japan	1	New Jersey State College, Montclair	1
Kent State University	1	New Mexico Highlands University	2
Kentucky, University of	1	New Mexico State University	2
King's College, Pa.	1	New Mexico, University of	1
Knox College	4	New York, City College	20
Lafayette College	1	New York, State University of, at Binghamton	5
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Louisville, University of	1	North Park College	1
Loyola University, Ill.	2	North Texas State University	1
Loyola University, La.	3	Northeastern University	1
MacMurray College	1	Northern State College	1
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McMurry College	1	Oklahoma, University of	6
Mercer University	1	Olivet Nazarene College	1
Merrimack College	12	Omaha, Municipal University of ...	2
Miami University	5	Oregon State University	4
Miami, University of	11	Oregon, University of	3
Michigan State University	32	Panjab University, India	2
Michigan, University of	2	Pembroke College	1
Middlebury College	1	Pennsylvania State College, Bloomsburg	1
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Minnesota, University of	1	Pennsylvania State College, East Stroudsburg	1
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Missouri, University of	1		
Montana State University			

Pennsylvania State College, Indiana	1	Southwestern at Memphis	1
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Pittsburgh, University of	12	Stevens Institute of Technology	1
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Pratt Institute	2	Sweet Briar College	20
Princeton University	16	Syracuse University	6
Providence College	4	Temple University	2
Puerto Rico, University of	3	Tennessee, University of	4
Purdue University	10	Texas A&M University	1
Queens College, N.Y.	13	Texas Christian University	1
Radcliffe College	1	Texas Technological College	6
Randolph-Macon Woman's College	1	Texas, University of	3
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Rhode Island, University of	1	Tulane University of Louisiana	2
Rice University	2	U.S. Air Force Academy	6
Richmond, University of	1	U.S. Coast Guard Academy	1
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Skidmore College	1	Wellesley College	1
Smith College	3	Westhampton College	6
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Southern Methodist University	7	Western Reserve University	1
Southwest Missouri State College	1	Wichita State University	5
Southwestern Louisiana, University of	1	William and Mary, College of	1
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Williams College	2	Xavier University	1
Wisconsin State University	1	Yale University	18
Wisconsin, University of	20	Yeshiva University	1
Wyoming, University of	1	Youngstown University	1

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Day	318	242	225	—	27
Evening	108	79	87	99	223
Total: 1,408					



ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

Requests for the following publications must include zip code and should be addressed as indicated.

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COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bachelor of Arts (B.A.), Bachelor of Science (B.S.), and Bachelor of Science in Medical Technology (B.S. in Med.Tech.)

GRADUATE SCHOOL OF ARTS AND SCIENCES: Master of Arts (M.A.), Master of Fine Arts (M.F.A.), Master of Music (Mus.M.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER: Juris Doctor (J.D.), Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), Master of Comparative Law (American Practice) (M.Comp.L.(Am.Prac.)), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Bachelor of Science (Civil Engineering) (B.S. (C.E.)), Bachelor of Science (Electrical Engineering) (B.S. (E.E.)), Bachelor of Science (Measurement Science) (B.S. (Meas.S.)), Bachelor of Science (Mechanical Engineering) (B.S. (M.E.)), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

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SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION: Bachelor of Business Administration (B.B.A.), Master of Arts in Government (M.A. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Master of Science in Administration (M.S. in Adm.), Master of Science in Business Administration (M.S. in B.A.), Master of Urban and Regional Planning (M. of Urb. and Reg.Plan.), Graduate Certificate in Health Care Administration (Grad.Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS: Bachelor of Arts (B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), Master of Arts (M.A.), and Master of Science in International Affairs (M.S. in I.A.)

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THE GEORGE WASHINGTON UNIVERSITY

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE SCHOOL OF ARTS AND SCIENCES, 1893

THE SCHOOL OF STUDENTS, 1895

THE NATIONAL LAW CENTER, 1895

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

THE SCHOOL OF EDUCATION, 1907

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION, 1925

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE SUMMER SESSIONS, 1940

THE UNIVERSITY HOSPITAL, 1898

THE GEORGE WASHINGTON UNIVERSITY BULLETIN



SCHOOL
OF
ENGINEERING
AND
APPLIED SCIENCE



1968-69

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Office of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 92. Zip code is essential for mailing catalogues.

Admission

Graduate

Arts and Sciences.....Dean of The Graduate School of Arts and Sciences
Education.....Dean of The School of Education
Engineering and Applied Science.....Dean of The School of Engineering and Applied Science

Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning
Dean of The School of Government and Business Administration
International Affairs and Public Affairs.....Dean of The School of Public and International Affairs

Law.....Dean of The National Law Center
School of Medicine.....1331 H Street, Washington, D.C. 20005

Undergraduate.....Office of Admissions
Alumni Association.....Alumni Office

Medical Alumni Association.....1331 H Street, Washington, D.C. 20005
Financial Aid.....Student Financial Aid Office

Foreign Students.....Adviser to International Students
Gifts and Bequests.....Resources Programs

Housing.....Director of Housing
Off-Campus and Noncredit Courses.....Dean of The College of General Studies

Student Employment.....Student and Alumni Career Services Office
Transcripts of Records.....Registrar

Summer Sessions.....Dean of The Summer Sessions
Veterans Education.....Registrar

THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXVII, Number 5, January 1968

Published by The University at Washington, D.C. 20006
MONTHLY: SEPTEMBER, DECEMBER, APRIL, AUGUST
(2 ISSUES IN NOVEMBER AND JANUARY; 3 ISSUES IN MARCH)

Second Class Postage Paid at Washington, D.C.

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE SCHOOL OF ENGINEERING
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WASHINGTON, D.C. 20006

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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

THE CALENDAR 1968-69

1968 FALL SEMESTER

September 12	Orientation for students from foreign countries <i>Thursday</i>
September 13	Placement tests for entering students <i>Friday</i>
September 16	Orientation Assembly for all new students <i>Monday</i>
September 16-17	Advising for all students <i>Monday-Tuesday</i>
*September 17-18	Registration—Tompkins Hall of Engineering <i>Tuesday-Wednesday</i>
	Application for February graduation due as part of registration
September 19	Classes begin <i>Thursday</i>
November 11	Veterans Day (holiday) <i>Monday</i>
November 27	Thanksgiving recess begins after last class <i>Wednesday</i>
December 2	Classes resume <i>Monday</i>
December 9	D.Sc. dissertations of February candidates due <i>Monday</i>
December 21	Christmas recess begins after last class <i>Saturday</i>
January 6	Classes resume <i>Monday</i>
January 6	Master's theses of February candidates due <i>Monday</i>
January 14	Last day of fall-semester classes <i>Tuesday</i>
January 17-25	Examination period <i>Friday-Saturday</i>
January 20	Inauguration Day (holiday) <i>Monday</i>

1969 SPRING SEMESTER

January 27	Placement tests and waiver examinations <i>Monday</i>
January 27-29	Advising for all students <i>Monday-Wednesday</i>
*January 30-February 1	Registration—Tompkins Hall of Engineering <i>Thursday-Saturday</i>
	Application for June graduation due as part of registration
February 3	Spring-semester classes begin <i>Monday</i>
February 21	Holiday <i>Friday</i>
February 22	Winter Convocation (holiday) <i>Saturday</i>
April 1	D.Sc. dissertations of June candidates due <i>Tuesday</i>
April 2	Spring recess begins after last class <i>Wednesday</i>
April 9	Classes resume <i>Wednesday</i>
April 25	Master's theses of June candidates due <i>Friday</i>
May 20	Last day of spring-semester classes <i>Tuesday</i>
May 23-31	Examination period <i>Friday-Saturday</i>
May 30	Memorial Day (holiday) <i>Friday</i>
June 8	Baccalaureate Service <i>Sunday</i>
June 8	Commencement <i>Sunday</i>

1969 SUMMER SESSIONS†

1969 FALL SEMESTER

Registration—*Tuesday-Wednesday*

* The hours of registration will be stated in the *Schedule of Classes*, which is available well in advance of each semester.
† Dates will be announced in the Calendar of the 1969 Summer Sessions Catalogue published December 1968.

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE

A PROFILE

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE is a professional School in a University comprised of eight degree-granting schools and colleges.

The University is a private nonsectarian institution of higher education in the center of the Nation's Capital.

The School centers attention on the individual and his development toward a successful professional career.

Curricula emphasize theory, analysis, and design, in preparation for productive careers in modern science and engineering.

Imagination and creativity are fostered in an atmosphere that encourages the student to realize his full capabilities in accord with his interests.

THE SCHOOL

EVERY SCHOOL HAS FEATURES THAT DISTINGUISH IT FROM OTHER SCHOOLS and give it a distinctive character. These may be ivy-covered halls, a particular strength of faculty in some area, a location, a student body with certain characteristics. It is necessary that a student know the character of the school before he can make an intelligent decision to undertake his educational development there.

The School of Engineering and Applied Science is a professional school in a University comprised of eight degree-granting schools and colleges. The University is the only private nonsectarian institution of higher education in the Nation's Capital. It is an urban institution in the center of the city. Its students live in the midst of the city's life with all its opportunities for cultural and intellectual development. In a very real sense college life is integrated into the pattern and culture of modern society, providing a most favorable environment for the development and maturing of the student to take his place in the world of today.

The School's purpose is the education of men and women for productive careers in engineering and applied science. We believe we have the function and responsibility to provide an environment and discipline that encourages and fosters development of the whole individual, with an understanding of the society he will serve as well as a high competence in science and technology. The engineer and the applied scientist work for the benefit of humanity; to do so well and responsibly requires that they comprehend the behavior of human beings in addition to the behavior of machines or materials.

The School recognizes the individual student as the single most important element in the educational process. Since individuals are distinctive, there can be no single educational formula or pattern by which the student may be led to professional competence. Therefore attention is centered on the individual, seeking that particular combination that will encourage and assist him to his utmost effort in his development. The School provides opportunity for many educational experiences, and encourages him to explore many paths toward his goal. He is given much personal freedom, but freedom tempered with responsibility to accept the consequences of his actions and decisions and restrained by the ethics, practices, and rules of the profession he is preparing to enter.

We recognize the essential unity of science and technology, of engineering and applied science. In our curricula strong emphasis is placed on knowledge

which is fundamental and has continuing application. Major attention is given to acquisition of competence in theory, analysis, and design, to the end that the individual may possess the means for translating his ideas into reality. Imagination and creativity are encouraged in preference to memorization of technical detail. We aim toward understanding and comprehension as preparation for a professional career.

The demands of a professional career in engineering or applied science are exacting. We believe the student should be exposed to these demands in his preparation, as a part of his learning process. He is encouraged to explore the limits of his capability, and is assisted when he makes mistakes. He learns by doing and by the correction of his errors and mistakes. He is never penalized for trying but he must try.

The atmosphere of the School is one of serious-minded effort toward mature development. Students work closely with faculty members. The student body is close-knit and has a high sense of responsibility and loyalty to its individual members and to the School.

Approximately half of the 300 undergraduate and 950 graduate students come from throughout the nation and foreign countries. A substantial number of students are employed. The student body has a primary interest in design, research, development, and management in both scientific and engineering activities.

The objective toward which the School strives is to stimulate and assist the student to develop to the limit of his capability; to acquire understanding of the principles and practices of engineering and applied science; to develop skill in the application of his knowledge to serve the needs of mankind; and to have a sense of responsibility to society and his profession.

HISTORY

The School of Engineering and Applied Science was organized October 1, 1884, as the Corcoran Scientific School of Columbian University and was situated in the University Building then at 15th and H Streets, N.W. The School was named in honor of William W. Corcoran, Trustee and President of the Corporation from 1869 to 1888. Day and evening courses were offered in Literature, Science, and Technology and led to the degrees of Bachelor of Science, Civil Engineer, Mechanical Engineer, and Mining Engineer. The School was among the first to accept women for degree candidacy in engineering.

In 1903 the Corcoran Scientific School, the School of Graduate Studies, and the Columbian College were merged into a single Department of Arts and Sciences. Engineering degrees were made graduate.

Administrative changes led to The Washington College of Engineering being initiated in 1905 as one of the several semi-independent undergraduate colleges of the University, each with its own Board of Trustees. The College provided instruction leading to undergraduate degrees in engineering and architecture.

In 1909 the name of the College was changed to the College of Engineering and Mechanic Arts, and the curricula were revised to give the student a thorough understanding of the theory underlying engineering practice. Emphasis was placed on the development of a knowledge of scientific principles upon which the student could build and by which he might solve new problems as they are met in practice.

The name of the School was changed again in 1914 to the College of Engineering and later to the School of Engineering. Architecture was dropped from the curriculum and degrees were limited to the field of engineering. However, the primary emphasis upon principles rather than technology which had characterized the School since 1903 was continued and has remained to this day as one of the important distinguishing features of the School.

In 1962 the name of the School became the School of Engineering and Applied Science.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The curricula in Civil Engineering, Electrical Engineering, and Mechanical Engineering are accredited by the Engineers' Council for Professional Development.

UNDERGRADUATE STUDY

THE UNDERGRADUATE PROGRAM is intended to provide a solid foundation in the basic principles, concepts, and techniques underlying engineering and applied science, on which the individual may build technical competence in a variety of areas as his professional career develops. It is preparation for a career in engineering or applied science, as it exists today and as it may develop in the future.

Undergraduate study is the formal beginning of a life-long continuing program of education. The School provides an environment that encourages and fosters the attitudes and disciplines essential to professional growth. The graduate, when he receives his Bachelor's degree, is prepared for productive work in his chosen field; he is also prepared for further development and progress, both formal and informal.

Admission indicates the student possesses at least minimum preparation and the probable capacity to meet the unusual educational demands of this School. However, the nature of the approach requires the student's real effort, intellectual discipline, and maturity. Because the School can predict neither the student's response to the demands made on him nor the program he should follow for his most effective development, it has designed an undergraduate program that offers a variety of experiences through which the student may find his own best path to maturity and growth in educational development.

In the fields of engineering and applied science there is no substitute for demonstrated ability and competence to solve the problems faced. Achievement in a particular course of study, while important, is less pertinent than the ability to analyze and interpret all the aspects of a problem, formulate solutions, and evaluate the solutions in the light of all available information. The undergraduate program provides periodic evaluation and appraisal by a faculty adviser of the student's ability and progress.

Engineers and applied scientists are involved with the conquest of nature for the benefit of mankind, as well as with the development and accumulation of the knowledge. They live and do their work in the real-life environment of the moment, and what they do for humanity is dictated in large part by the needs and desires of man for security and comfort. Thus they must have a strong sense of morality, a high concern for the progressive well-being of mankind, and an intimate knowledge of the realities of life. Therefore the School insists that the undergraduate include in his study courses in the humanities and social sciences, to the extent necessary to develop a reasonable understanding and

appreciation of these areas of knowledge. Cultivation in the intricacies of society and comprehension of human values are sought for the student, in complement to his scientific and technical literacy.

The School is a place for learning: for experiencing adventures of the mind and of the hands; for the formulation, exchange, and exploration of ideas. During his undergraduate years the student is led to strengthen his skills in analysis and his talent for creative activity, through liberal use of project-type laboratory work. Independent thought and original ideas receive higher evaluation, in the appraisal of student achievements, than the rote recital of information.

THE CURRICULA

The four four-year curricula lead to the degree of Bachelor of Science, with parenthetical designation of the area of concentration; for example, Bachelor of Science (Electrical Engineering). Students who are deficient in preparation require a longer period; those who are admitted with advanced standing or who attend summer sessions can complete the requirements in less time.

The program of the first five semesters (2½ years) is common to all curricula and provides the essential broad base of scientific principles, mathematical techniques, and culture underlying the professional courses of the last three semesters.

A minimum total of 130 semester hours is required to qualify for the degree. However, students are encouraged to elect additional course work above the required minimum to the extent their interests and the School's offerings permit.

Degrees are offered in Civil Engineering, Electrical Engineering, Measurement Science, and Mechanical Engineering.

The student is assisted by his faculty adviser, who approves his program each semester prior to registration. For the guidance of the student and his adviser, every beginning student takes the School's placement examinations in English, Reading, Algebra, and Trigonometry. The student must take remedial work in any of these areas in which he is deficient, prior to enrollment in courses in the area of deficiency.

BASIC CURRICULUM

(Semester hours of credit are indicated in parentheses following the name of the course)

First Semester

- Chem 11: General Chemistry (4)
- Engr 21: Application of Computers to Engineering Problems (3)
- Math 21: Calculus I (3)
- *Elective: Selected from humanities or social sciences (3 to 6)

Second Semester

- Chem 12: General Chemistry (4)
- Math 22: Calculus II (3)
- Phys 30: Introductory Modern Physics (4)
- *Elective: Selected from humanities or social sciences (3 to 6)

* Students deficient in Physics take Physics I (4); students deficient in English take English 1: (3)

Third Semester

- Math 23: Calculus III (3)
Math 24: Calculus IV (3)
Phys 31: Introduction to Theoretical Physics (2)
Phys 51: Introduction to Experimental Physics (2)
Elective: Selected from humanities or social sciences (3 to 6)

Fourth Semester

- Ap S 59: Introductory Analytical Mechanics I (4)
Ap S 113: Engineering Analysis I (3)
Phys 32: Introduction to Theoretical Physics (2)
Phys 52: Introduction to Experimental Physics (2)
Elective: Selected from humanities or social sciences (6)

Fifth Semester

- Ap S 9: Fields and Waves I (3)
Ap S 29: Linear Networks I (3)
Ap S 60: Introductory Analytical Mechanics II (4)
Ap S 85: Thermodynamics (3)
Ap S 114: Engineering Analysis II (3)

CIVIL ENGINEERING

Civil engineering is the broad branch of engineering most closely related to daily human activities. Study in this area prepares for careers in the design of buildings, bridges, aircraft and missile frames, tunnels, and dams; the planning of cities; and research on new types of structures, new materials, and new methods of construction.

The concentration of study outlined below provides the essentials for beginning a career upon graduation, for registration as a professional civil engineer as required by law, and for continuing study at the graduate level.

Prerequisite: first five semesters in Basic Curriculum.

Sixth Semester

- Ap S 63: Fluid Mechanics (3)
Ap S 65: Dynamics of Linear Systems (3)
Ap S 101: Materials Science (3)
Ap S 121: Structural Theory I (3)
Engr 18: Engineering Electronics I (3)
Elective: Selected from humanities or social sciences (3)

Seventh Semester

- Ap S 70: Earth Science (3)
Ap S 71: Mechanics of Deformable Solids I (3)
Ap S 122: Structural Theory II (3)
Engr 11: Structural Design I (3)
Engr 113: Engineering Materials (3)
Engr 141: Urban Systems (3)

Eighth Semester

- Ap S 62: Soil Mechanics (3)
- Engr 10: Hydraulic Engineering (3)
- Engr 12: Structural Design II (3)
- Engr 140: Engineering Economics (3)
- Engr 142: Design Projects (3)
- Engr 144: Environmental Engineering (3)

ELECTRICAL ENGINEERING

The electrical engineering curriculum provides preparation for the use and control of electrical energy. The study outlined prepares for such activities as design and use of electronic devices; application of such devices in control systems, communication systems, and computers; analysis and design of electrical devices; and electrical energy conversion.

This concentration provides an insight into the most modern areas of electrical engineering, preparation for immediate careers in these areas, and a sound base for graduate study.

Prerequisite: first five semesters in Basic Curriculum.

Sixth Semester

- Ap S 10: Fields and Waves II (3)
- Ap S 30: Linear Networks II (3)
- Ap S 101: Materials Science (3)
- Engr 18: Engineering Electronics I (3)
- Engr 100: Introductory Electrical Engineering Laboratory (3)
- Elective: Selected from humanities or social sciences (3)

Seventh Semester

- Ap S 31: Linear Systems (3)
- Ap S 120: Electromagnetic Waves (3)
- Ap S 130: Electrical Energy Conversion (3)
- Engr 19: Engineering Electronics II (3)
- Engr 105: Electrical Engineering Laboratory I (3)
- Engr 121: Switching Networks (3)

Eighth Semester

- Ap S 50: Information Transmission, Modulation, and Noise (3)
- Ap S 55: Control Systems (3)
- Ap S 132: Active Networks (3)
- Engr 20: Engineering Electronics III (3)
- Engr 49: Electrical Measurement (3)
- or Eng 122: Digital Computers (3)
- Engr 106: Electrical Engineering Laboratory II (3)

MEASUREMENT SCIENCE

Measurement science concerns the design, construction, and use of instruments in measurement, and the design of experiments. The curriculum prepares for such activities as testing of rockets, missiles, and space vehicles; measurements

of the characteristics and properties of materials; determination of standards of measurement in light, heat, optics, electricity, etc.; measurement in various fields of science and in medicine; design and construction of measuring instruments; design and execution of experiments and tests of various kinds; and control of quality of manufactured products.

The graduate will find many opportunities in space research, industry, manufacturing, and research. Opportunities are especially good in the design and application of instruments.

Prerequisite: first five semesters in Basic Curriculum.

Sixth Semester

- Ap S 30: Linear Networks II (3)
- Ap S 63: Fluid Mechanics (3)
- Ap S 101: Materials Science (3)
- Ap S 115: Engineering Analysis III (3)
- Engr 18: Engineering Electronics I (3)
- Engr 100: Introductory Electrical Engineering Laboratory (3)

Seventh Semester

- Ap S 105: Measurement Science I (3)
- Engr 19: Engineering Electronics II (3)
- Engr 52: Introductory Instrumentation (3)
- Engr 54: Mechanical Measurement (3)
- Engr 55: Heat Measurement (3)
- Engr 101: Measurement Laboratory (3)

Eighth Semester

- Ap S 106: Measurement Science II (3)
- Engr 20: Engineering Electronics III (3)
- Engr 49: Electrical Measurement (3)
- Engr 53: Instrumentation (3)
- Engr 56: Pressure Measurement (3)
- Engr 102: Measurement Projects Laboratory (3)

MECHANICAL ENGINEERING

Mechanical engineering is the broad branch of engineering concerning machinery, equipment, and other power devices; particularly in manufacturing and industry. The study outlined below is preparation for such activities as design of power generating equipment and plants (viz.: jet engines, gas turbines, steam boilers, etc.); design and construction of aircraft, missiles, automobiles, and ships; manufacture of machines and goods; design of mechanical equipment (heating, air-conditioning, automatic machinery, nuclear reactor controls); and research to develop new kinds of power machinery.

The graduate will find many opportunities in manufacturing, design, and research. The preparation is adequate for beginning the practice of mechanical engineering, and provides the essential knowledge for registration as required by law for practice as a professional mechanical engineer.

Careers in research in mechanical engineering should include additional study at the graduate level.

Prerequisite: first five semesters in Basic Curriculum.

Sixth Semester

- Ap S 63: Fluid Mechanics (3)
- Ap S 65: Dynamics of Linear Systems (3)
- Ap S 101: Materials Science (3)
- Engr 18: Engineering Electronics I (3)
- Engr 31: Thermal Power (3)
- Elective: Selected from humanities or social sciences (3)

Seventh Semester

- Ap S 64: Compressible Fluid Flow (3)
- Ap S 66: Advanced Dynamics (3)
- Ap S 71: Mechanics of Deformable Solids I (3)
- Ap S 87: Heat Transfer Theory (3)
- Engr 113: Engineering Materials (3)
- Engr 131: Mechanical Design I (3)

Eighth Semester

- Ap S 55: Control Systems (3)
- Ap S 72: Mechanics of Deformable Solids II (3)
- Engr 86: Energy Conversion (3)
- Engr 111: Mechanical Engineering Laboratory (3)
- Engr 132: Mechanical Design II (3)
- Engr 140: Engineering Economics (3)

ADMISSION TO UNDERGRADUATE STUDY

The School admits those who can benefit themselves and society by disciplined intellectual effort in its environment.

Admission to the School is the first selective step of a long series of qualifying tests the student will take in progression toward professional competence and status, and indicates the School's belief that the applicant has at least the minimum preparation and ability to complete the curriculum successfully.

CRITERIA FOR ADMISSION

The applicant must be of good character and must have an academic background appropriate for the program of studies contemplated.

Consideration for admission is based on the following:

1. An acceptable certificate of graduation from an accredited high school showing at least fifteen units*;
2. The principal's statement that the applicant is prepared to undertake college work;
3. Scores on the following College Entrance Examination Board tests: the Scholastic Aptitude Test, the English Composition Achievement Test, and a Level I (Standard) or Level II (Intensive) Mathematics Test—Level I preferred.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods of prepared classroom work.

4. Evidence from the high school grades that the applicant can achieve satisfactorily in formal study.

The qualifications of applicants who, because of unusual circumstances, do not meet the above requirements will be considered by the School, which may prescribe admission tests.

Nine and one-half of the fifteen units required for entrance must be distributed as follows: three in English, two in algebra, one in plane geometry, one-half in plane trigonometry, one in physics or chemistry, and two in one foreign language or history. General science may *not* be counted in satisfaction of the science requirement but may be counted as an elective unit.

It is recommended that *both* physics and chemistry be studied in high school. A high school course in solid geometry is recommended as a firm foundation for college mathematics.

Quantitative Deficiency.—A graduate of an approved high school who lacks not more than two units of the required subjects and who presents fifteen acceptable units may be admitted to a prescribed program which includes courses to make up his deficiencies.

ADMISSION PROCEDURE

An applicant for admission obtains from the Office of Admissions of the University an application blank which he must fill out completely and return with the \$25* application fee.

STUDENTS FROM U. S. INSTITUTIONS

Records presented become the property of the University and *cannot* be returned.

REGULAR ADMISSION

Applicants for regular admission who wish to begin college in the fall semester *should* apply during the fall term of the senior high school year, and no later than June 1. Students graduating at mid-term wishing to begin college in the spring semester *must* apply no later than December 1. Applications and all required credentials of students wishing to begin college in either the first or second term of the summer session must be received prior to March 1.

An applicant from a secondary school must arrange to have sent directly from his school to the Office of Admissions a complete academic record together with a personal evaluation and recommendation from his principal. This information may be supplied on a form provided by the University or on a standard form used by the secondary school provided all essential information is included.

EARLY DECISION PLAN

For the qualified applicant who wants to begin college in the fall semester and receive an early guarantee of space, the University offers an early decision plan.

* Application fee must be by check or postal money order, payable to The George Washington University. The application fee is waived for a student applying for readmission who was registered as a degree candidate at the time of his last registration at this University and has not since registered at another institution.

The applicant need *only* indicate on the application form that he wishes an early decision and have all required credentials in the Office of Admissions prior to November 1. A decision will be mailed by December 15. The declaration of intent to attend the University and a \$200 tuition deposit (plus an additional \$200 housing deposit for resident students), nonrefundable, *must be submitted by January 15 to reserve space.*

If the applicant is accepted under the early decision plan but fails to submit the deposit by January 15, he will be reconsidered along with all other applicants, for regular admission, as described above.

TRANSFER STUDENTS

Transfer students from other institutions *must* submit application and required credentials prior to August 15 for the fall semester, December 15 for the spring semester, May 1 for the Summer Sessions.

The transfer student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

An applicant who has attended one or more institutions of higher learning must request *each* registrar to mail directly to the Office of Admissions a transcript of his record, *even though credits were not earned.*

If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of Admissions.

If an applicant has fewer than 60 semester hours of acceptable work (C or better on academic work from an accredited institution), he must request that his high school record and College Entrance Examination Board Test scores be sent to the Office of Admissions.

STUDENTS FROM FOREIGN INSTITUTIONS

Application, required records, and scores on the *Test of English as a Foreign Language* (see below) must be received from all *foreign applicants* no later than March 1 for the fall semester and November 1 for the spring semester.

REQUIRED RECORDS

Applicants must request all educational institutions attended to send directly to the Office of Admissions official credentials listing subjects studied, grades received, examinations taken, and degrees received. Certified copies of diplomas and certificates from secondary schools and all colleges and universities attended are required. Records of state examinations and certificates are also needed. All records become the property of the University and *cannot* be returned.

LANGUAGE TEST

Students from countries whose official language is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The completed application form should be returned to the Testing Service at Princeton well in advance of the beginning of the semester for which the applicant seeks

admission. A \$10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does not constitute application for admission to The George Washington University.

The Bulletin of Information, obtainable without charge, contains description of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and application blank. On the application for the test, the student should specify that the scores be sent to the Office of Admissions, The George Washington University, Washington, D. C. 20006.

If additional tests are prescribed, necessary instructions will be sent to the applicant by the Office of Admissions.

READMISSION

A student previously registered in the University who was not registered on campus during the immediately preceding semester must apply for readmission. Final dates for applying are the same as those for "Transfer Students," see page 17. If the student applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of Admissions from each institution attended before his application will be considered. Applications for readmission are considered on the basis of regulations currently effective.

The application fee is waived for a student applying for readmission who was registered as a degree candidate at the time of his last registration at this University and has not since registered at another institution.

TUITION DEPOSIT

Upon notification of acceptance, a \$100 tuition deposit (\$200 for students admitted by early decision, see pages 16-17) will be required of all full-time students including those readmitted. The deposit is credited toward tuition and is not refundable.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Advanced standing may be granted for study at the collegiate level in advanced courses in an approved secondary school, if substantiated by satisfactory performance in the appropriate Advanced Placement Examination of the College Entrance Examination Board. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board, Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, N.J., 08540 or 1947 Center Street, Berkeley, Calif. 94707.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the course of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

Total credit that may be so granted is ordinarily limited to 15 semester hours, not more than 8 semester hours of which may be in any one examination area. In exceptional cases these limits may be exceeded, but in no case will the credit granted exceed 30 semester hours.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University, and subject to the general University regulations concerning satisfactory subsequent work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

SERVICE SCHOOL CREDIT

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates in the School of Engineering and Applied Science. Veterans should submit to the Office of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate it in the *Guide to Evaluation of Educational Experience in the Armed Forces*.

REGISTRATION

A student cannot register for classes until he has received a letter of admission to the University.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in the School of Engineering and Applied Science and in another institution or another division of this University without prior permission of the Dean. Allowance of credit for work done concurrently at another institution will be at the discretion of the Dean.

The dates, hours, and place of registration will be stated in the *Schedule of Classes*, which is available well in advance of each semester.

Eligibility for registration is established as follows:

New or Transfer Student.—Upon receipt of a certificate of admission from the Office of Admissions, the new or transfer student is eligible for registration.

Readmitted Student.—A student previously registered in the University who was not registered for campus courses during the preceding semester or summer session must apply for and receive a letter of readmission from the Office of Admissions, before he is eligible for registration. A student registered for the spring semester 1967-68 need not apply for readmission for the fall semester of 1968-69. Such a student is a "Continuing student."

Continuing Student.—The student registered for campus courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for the Summer Sessions campus courses, and not restricted to summer registration, is eligible to register for the fall semester on presentation of his Summer Sessions student identification card.

REGULATIONS

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

A student suspended for any cause may not attend classes during the period of suspension.

The student is expected to attend every meeting of the course in which he is registered, fully prepared to carry on the work required. The student is held responsible for all work in the course, and all absences must be excused before provision will be made for him to make up the work missed. Excuses for absences from examinations which have been announced in advance can be obtained only by making written application to the instructor in charge of the course.

ACADEMIC WORK LOAD

A full-time undergraduate student who is not on probation may register for no more than 20 semester hours. A student employed more than 24 hours a week who is not on probation may take no more than 10 semester hours. In exceptional cases these limits may be exceeded with the Dean's permission.

A student previously unemployed who accepts employment after registration must immediately report that fact to the Dean so that his schedule may be adjusted if necessary.

ADVISORY SYSTEM

The School of Engineering and Applied Science encourages a close faculty-student relationship. Every entering undergraduate student is assigned a permanent faculty adviser to assist him to orient himself in the professional discipline. Faculty advisers counsel students on their programs of study, the achievement and maintenance of satisfactory scholastic performances, professional development, and extracurricular activity as part of the educational process. The adviser represents the student in all cases requiring faculty action.

Students must obtain their advisers' approval of programs of study prior to registration. Until a student has completed the work required for the degree he must consult his adviser in all academic matters. However, an adviser may not deny a student entry into any course or activity to which he is entitled under the regulations of the School.

All students are encouraged to discuss college problems with their advisers or instructors at any time; and parents or guardians are invited to consult with the Dean and advisers concerning any student problems.

Faculty advisers discharge their counseling duties in accordance with the high principles of their professional responsibility; however, the final responsibility for a student's action lies wholly with the student.

SCHOLARSHIP REQUIREMENTS

An undergraduate student must maintain a cumulative quality-point index of at least 2.00.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester.

The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR*, credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) is recorded.

An *I* (incomplete) grade is given by an instructor only for reasons satisfactory to the instructor and presented to him before the last day of classes for the semester in which the course is given. An *I* cannot be removed by repeating the course. An *I* cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An *I* which is not removed within one calendar year is automatically changed to an *F*.

A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the Dean.

THE QUALITY-POINT INDEX

Scholastic standing is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University applicable to the degree objective of the student.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W*, *I*, or *CR* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. Grades in courses taken at another institution are not considered in computing the quality-point index.

In order to graduate, a student must have a quality-point index of at least 2.00 in all work taken at this University, and accepted in the School of Engineering and Applied Science.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors report to the Dean the names of students whose scholarship is unsatisfactory. On receipt of a warning notice the student must consult his instructor and his adviser immediately.

The adviser may prescribe diagnostic tests and or remedial study to be completed before the end of the current semester.

Probation.—An undergraduate student whose quality-point index falls below 2.00 is placed on probation. This probation extends over the period in which the student completes a minimum of 12 semester hours of study and may be extended over a longer period.

A student on probation is required to follow a specified program of study, including remedial studies as prescribed, and is not eligible to participate in student activities.

Suspension.—An undergraduate student whose quality-point index is below 2.00 at the end of his probationary period is suspended. A student whose index falls below 2.00 after removal from probation is suspended.

A student suspended for poor scholarship may apply to be readmitted in the semester or summer session which begins next after an interval of one calendar year. A student readmitted after suspension is on probation. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

A student who is readmitted after suspension because of academic dishonesty may be required to repeat for grade all courses for which a disciplinary grade was recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade are included in computing the quality-point index.

HONORS LIST

The Faculty of the School recognizes meritorious scholastic achievement by an Honors List, containing the names of candidates for undergraduate degrees whose scholastic achievement satisfies all of the following requirements:

1. The candidate's quality-point index is equal to or exceeds 3.00 on a minimum of 13 semester hours in one semester.
2. No grade below C has been received during the qualifying period.
3. No disciplinary action has been taken in respect to the student.

The Honors List is prepared at the end of the fall and spring semesters and displayed in an appropriate public place in the School. A notation is made on the student's record each time his name is included in the List.

WITHDRAWAL

A student who withdraws or is otherwise absent from the University for one semester or more must apply for readmission. If readmitted he continues his work under the requirements and regulations in force at the time of his readmission.

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean of the School. Notification to an instructor is not an acceptable notice.

Withdrawal from a course or from the University, without academic or financial penalty, requires the permission of the Dean of the School. Permission to withdraw from the University will not be granted a student who does not have a clear financial record.

Withdrawal from any course without academic penalty after the fourteenth day following the first day of classes of a semester may be granted by the Dean

under the following conditions: (1) exceptional circumstances make the request necessary; (2) the request is submitted on the official form for late withdrawal; (3) as of the date of request, the grades in all courses involved are C or better. In all cases financial regulations governing withdrawal remain in full effect.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

CHANGES IN PROGRAM OF STUDIES

After the registration period a student may not make any changes in his registration without the approval of the Dean. Requests for changes in registration must be made on forms provided in the School Office, Room 100, Tompkins Hall of Engineering.

During the seven days following the first day of classes of a semester, courses may be added to the student's program with the approval of the instructor, the student's adviser, and the Dean.

Courses may be dropped without academic penalty only during the fourteen days following the first day of classes, with the approval of the instructor, the student's adviser, and the Dean.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of a course or upon the granting of advanced standing. A student who takes a course as an auditor may not take the same course later for credit.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree.

TRANSCRIPTS OF RECORD

Official transcripts of student records are issued on request of the student or former student who has a clear financial record. A fee of one dollar is charged for each transcript.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school at another institution and apply credit so earned toward graduation from this University must first secure the written approval of the Dean. In no event will credit in excess of what might be earned in a similar period in this University be recognized.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until all degree requirements are satisfied. By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmissions," page 18). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, or are expecting to graduate at the end of the Summer Sessions.

Students on Military Leave, see page 25.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the admission requirement of the School; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree.

Application for Graduation.—Application for graduation must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior year.

Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.*

Curriculum.—Curriculum requirements are stated on pages 11–15.

Residence.—A minimum of 30 weeks and 30 semester hours must be completed in residence. Summer work may be counted. Unless special permission is granted by the Dean to study elsewhere, the work of the final year must be completed in residence.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

HONORS

With distinction.—A Bachelor's degree may be conferred "with distinction," at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—A Bachelor's degree may be conferred with "special honors," at the discretion of the Faculty, for outstanding achievement in the student's senior year work on recommendation of the Faculty, under the following regulations:

1. The student must have his candidacy for special honors approved by the department chairman representing his major field not later than the beginning of his senior year.

2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for special honors a student must have completed at this institution at least one-half of the work required for the degree.

MILITARY LEAVE

A student called to active duty will be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University well in advance of the semester in which he expects to return.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

GRADUATE STUDY

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE offers graduate study leading to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

Graduate study is rapidly becoming a necessity for the engineer or applied scientist. Through graduate study tomorrow's leaders are developing today the increased knowledge and capability demanded by the advances in engineering, science, and administration. Industry and government eagerly seek those with advanced knowledge, analytical skill, and ability.

In the graduate programs, as in undergraduate study, the educational philosophy of the School is to increase the knowledge and understanding of the individual student by concentration on principles and their application rather than by encyclopedic coverage of techniques and specialized detail. Each Master's program is individually planned according to the student's preparation and needs. Included are a minimum of 24 semester hours of courses in his major area and related fields, a Master's thesis, and a Master's Comprehensive Examination. Doctoral programs generally require a minimum of 30 semester hours of course work beyond the Master's level, a qualifying examination, a research program, a dissertation, and a final examination.

Graduate study may be undertaken in any field of engineering or applied science in which the School has adequate facilities and resources. The student also may select courses in other departments of instruction of the University in order to serve specific needs or objectives.

The Master's Programs

THE DEGREE OF MASTER OF SCIENCE

THE OBJECTIVE OF THIS DISCIPLINE is a substantial comprehension of principles and methods for their use, as applied in modern technology. Increased understanding and its use in solving engineering problems are sought, rather than a breadth of familiarity with applications and techniques.

The student's program may provide for broad coverage in a variety of fields or may be designed to give some degree of specialization in a particular area, as determined by conference. The specialization available is indicated by the courses of instruction (see pages 59-76).

The level of the courses ordinarily requires as prerequisite the satisfactory completion of at least one undergraduate course in mathematics beyond the first course in ordinary differential equations and at least one in the area of the graduate course to be undertaken.

MASTER'S PROGRAM IN OPERATIONS RESEARCH

The Department of Engineering Administration offers a program of study in Operations Research leading to the degree of Master of Science. Required courses are Engineering Administration 269-70, 272, and 273. Engineering Administration 272 is normally taken in the last semester.

THE DEGREE OF MASTER OF ENGINEERING ADMINISTRATION

The objective of this discipline is to develop an understanding of the principles and a competence in the practices of administration as applied to engineering and scientific activities.

This degree program is for engineers and scientists who have or anticipate responsibility for administration of engineering or scientific activities. Analysis, case study, and quantitative approaches are emphasized in addition to the technical theories of administration. A program of study (an integrated sequence of courses) is prescribed for each candidate in conference with an adviser. Students are required to complete Engineering Administration 211-12 and 269-70.

ADMISSION TO GRADUATE STUDY

Admission to graduate study toward a Master's degree requires an appropriate Bachelor's degree from a recognized institution and evidence of capacity for productive work in the field selected, as indicated by undergraduate grades, Graduate Record Examination scores, and similar data.

Applicants who have significant deficiencies in their preparation may qualify for admission to graduate study by taking prescribed undergraduate courses. In some cases such study may be carried on in addition to a limited graduate program. In no case may the undergraduate courses thus taken fulfill any part of the requirements for the graduate degree. *Admission to graduate study does not admit the student to degree candidacy.*

In addition to the requirements for admission to graduate study, the applicant for admission to the Master of Engineering Administration program must have an adequate knowledge of the principles of human relations, the fundamentals of accounting, and the fundamentals of statistics. This requirement can be met by successful completion of the following undergraduate courses or an approved equivalent: Psychology 145, *Psychology of Management*; Accounting 115, *Survey of Accounting*; and Applied Science 115, *Engineering Analysis III*.

In addition to the requirements for admission to graduate study, the applicant for admission to Master's degree candidacy in the Operations Research program must have an adequate knowledge of statistics. This requirement can be met by satisfactory completion of the following undergraduate courses or approved equivalents: Applied Science 115, *Engineering Analysis III*; Statistics 189-90, *Mathematical Probability and Applications*.

Credit for prerequisites for both the Master of Engineering Administration program and the Operations Research program is not applicable toward the Master's degree.

ADMISSION PROCEDURE

Forms for application for admission are available at the School of Engineering and Applied Science. They must be submitted, together with the application fee of \$25, to the Admissions Secretary, Room 100, Tompkins Hall of Engineering, The George Washington University, Washington, D.C. 20006, no later than September 1 for the fall semester, December 15 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session. The applicant must request each educational institution attended since high school graduation to send an official transcript of his record directly to the Admissions Secretary. If the applicant has completed the Graduate Record Examination, he should request that his scores be sent to the School. The applicant will be notified by mail when a decision on his admission has been made.

All inquiries and correspondence relative to admission should be directed to the Admissions Secretary.

ADMISSION TO DEGREE CANDIDACY

Applicants are admitted initially to graduate-student status. During this initial period the student must satisfy all prerequisite requirements, but may also take a limited number of courses for credit toward the Master's degree.

Once prerequisite requirements are satisfied, the student submits to the chairman of the department of his major field an application for admission to candidacy for his desired degree. *Application must be made immediately following the first semester in which he satisfactorily completes the third of his graduate level courses which are to be used for credit toward the Master's degree.* Application forms are obtained from the School Office, Room 100, Tompkins Hall of Engineering. The program the student wishes to follow as preparation for his Master's Comprehensive Examination must be stated on the admission to candidacy form. Upon approval by the department chairman, an official letter of admission to degree candidacy with an approved study program is sent to the student and the faculty adviser.

Graduate courses completed before admission to study toward a Master's degree are not transferable for degree credit. They may, however, be considered in planning individual programs. Course work to satisfy degree requirements in another school or college of the University may not be applied toward a degree in this School. Courses completed while a student in the Division of University Students are not accepted for credit in Master's programs.

REGISTRATION

A graduate student may register for classes when he presents an official letter of admission or his student identification card from the previous semester. No registration is accepted for less than a semester or one summer session.

Concurrent registration in this School and in another institution not a member of the Consortium of Universities of the Washington Metropolitan Area, Inc., or another division of this University requires the written permission of the Deans concerned, *prior to registration.* Allowance of credit for work done concurrently at another institution is at the discretion of the Dean.

Dates and hours of registration are stated in the Calendar, page 5, and in the *Schedule of Classes* published in advance of each semester.

MASTER'S THESIS

The degree candidate must submit an acceptable thesis to demonstrate his ability to make independent use of the knowledge and discipline of thought acquired and developed by graduate study, to furnish objective evidence of constructive power in a given field, and to demonstrate that he can communicate the results of his work in writing. Work of a suitable character for which the student has professional responsibility may be considered, whether done on or off campus, provided no significant amount of work is completed without faculty supervision.

As a part of registration for the thesis course, Engineering 299, the candidate must submit to the appropriate department chairman (on the form obtainable at the School office) his thesis area, approved by his faculty adviser. He must submit his thesis title to the Dean, on the form available in the School office, at the beginning of the semester in which he expects to graduate. Registration in Engineering 299-300 entitles the student, during such registration, to the advice of the member of the faculty under whom the thesis is to be written. The thesis is the exclusive responsibility of the student. He may consult his adviser, but the adviser assumes no responsibility for the thesis.

The thesis in final form must be submitted to the appropriate department chairman by the date stated in the calendar for the semester in which the candidate enrolls in Engineering 300. In case a thesis is unfinished on the date specified, the student will be granted an additional semester and must pay the "Continuous Registration" fee (see page 40). If the preparation of the thesis extends beyond the three-semester period, approval for an extension of time will be required and the student must reregister for Engineering 300 and pay tuition as for a repeated course. The over-all time limit for earning the degree (see page 31) may not be exceeded.

A thesis may be submitted in final form one time. The acceptability of the thesis is determined exclusively by the Master's Comprehensive Examination committee. If the thesis is unacceptable, the student's candidacy and graduate study are terminated.

Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the School. Accepted theses, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

MASTER'S COMPREHENSIVE EXAMINATION

After completing his prescribed program and submitting his thesis, the candidate must pass a Master's Comprehensive Examination, to demonstrate substantial understanding of principles and methods and their use in the area of his interest. This Examination may be written, oral, or both, and it must be passed on the first attempt. In the event of failure, the student's candidacy and graduate study terminate.

SUMMARY OF MASTER'S DEGREE REQUIREMENTS

Scholarship.—Grades of *B* or higher are required in all course work for the degree.

Residence.—A minimum of one year of full-time study, or the equivalent in part-time study, must be completed in the School.

Program.—The minimum program consists of 24 semester hours of approved graduate courses and a thesis (6 semester hours). Students whose undergraduate study does not include necessary prerequisites may be required to take more than 30 semester hours.

Thesis.—An acceptable thesis must be submitted by the time specified.

Master's Comprehensive Examination.—The Examination may be oral, written, or both and must be passed on the first attempt.

MASTER'S STUDY REGULATIONS

If a student knowingly makes a false statement or conceals material information on an application, registration card, or any other University document, his registration will be cancelled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

The student is expected to attend every meeting of the course in which he is registered, fully prepared to carry on the work required. A student may be dropped from any course for undue absence. Excused absences must be arranged with the instructor.

SCHOLARSHIP

For Master's work, a minimum of 24 semester hours of graduate course work with the grade of *B* or higher is required for graduation. Students who receive two grades of *F*, or (except those registered prior to and in continuous residence since the 1967 fall semester) three grades below *B*, are barred from further enrollment in graduate courses and, ordinarily, will not be readmitted to graduate study. Students who receive the grade of *C* in one or two courses are required to take additional course work to make up the minimum 24 semester hours of work with grades of *B* (except those registered prior to and in continuous residence since the 1967 fall semester).

GRADES

Grades are indicated as *A*, excellent; *B*, satisfactory; *C*, passing; *F*, failing; and *CR*, credit for satisfactory thesis completion. Whenever a grade is not assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) is recorded.

An incomplete may be given at the instructor's discretion. The instructor must state in writing the conditions to be satisfied and the time allowed for making up the incomplete. An incomplete which is not removed within one calendar year is automatically changed to an *F*.

ACADEMIC DISHONESTY

A student found guilty of dishonesty by the Dean's Council will be suspended from the University. He will be deprived of credit for all courses in which he

is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course.

TIME TO COMPLETE MASTER'S DEGREE REQUIREMENTS

A full-time Master's candidate is allowed a maximum of three calendar years to complete all degree requirements, from the date of his first graduate-student status registration in prerequisite or graduate courses. A part-time Master's candidate is allowed a maximum of five calendar years. The time limit does not encompass any specified period spent on approved leave of absence. Readmission is required upon expiration of leave of absence under the conditions and requirements then prevailing.

Students who do not complete degree requirements within the allowed time have their graduate status terminated. They may be readmitted to graduate status under conditions specified by the department chairman and approved by the Dean.

CHANGES IN PROGRAM OF STUDIES

A student may not make any changes in his approved program of studies without the approval of the Dean. Requests for change in class registration must be made on forms provided in the School Office.

During the seven days following the first day of classes of a semester, courses may be added to the student's program with the approval of the instructor and the Dean.

Courses may be dropped without academic penalty only within the first four weeks of a semester, with the approval of the instructor and the Dean.

WITHDRAWAL

Application for withdrawal from the University or from a class must be made in writing to the Dean. Notification to an instructor is not an acceptable notice.

A student who withdraws, or is otherwise absent from the School for one semester or more, must apply for readmission and, if readmitted, may continue his work only under the requirements and regulations in force at the time of his readmission.

Withdrawal from a course or from the University, without academic or financial penalty, requires the permission of the Dean. Permission to withdraw from the University will not be granted a student who does not have a clear financial record.

In exceptional circumstances the Dean may authorize withdrawal without academic penalty after the first four weeks of a semester. In all cases financial regulations governing withdrawal remain in full effect.

All charges for courses dropped without the approval of the Dean must be met by the student.

CREDIT

Credit toward a Master's degree is given only after registration for and satisfactory completion of the required work of a course. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records are issued on request of the student or former student who has a clear financial record. A fee of one dollar is charged for each transcript.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until all degree requirements are satisfied. Students who have completed course registration (including the thesis) maintain continuous registration by paying the "continuous registration" fee (see page 40). By failing to register for one semester or more, the student breaks his registration and must be readmitted. The procedure for readmission for Master's candidates is the same as that for undergraduates (see page 18). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

APPLICATION FOR GRADUATION

Application for graduation must be filed and the appropriate fee paid at the time of registration for the semester or summer session during which degree requirements will be completed. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

ATTENDANCE AND CONDUCT

The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

The Doctoral Program

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE offers a program of advanced study and research leading to the degree of Doctor of Science. This program is limited to recognized fields in engineering or applied science in which a scientific discipline exists and for which the University has adequate resources.

The Doctoral discipline is designed to prepare the student for a career of creative scholarship by providing a broad background of knowledge and an understanding of research methods. It requires study of interrelated fields of learning as well as original research in the field of central interest.

The discipline for the degree is divided into two stages. The first—made up of a study of interrelated fields of learning which support the general area of research concentration—culminates in the qualifying examination. The second—composed of research investigation of a particular subject in a special field and the presentation of such research findings in a written dissertation—culminates in the final examination.

ADMISSION TO DOCTORAL STUDY

The applicant must have adequate preparation for advanced study, including a satisfactory Master's degree, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. He must have capabilities and interests beyond the mere assimilation of organized materials in formal courses of instruction. Originality of mind combined with balanced judgment and accuracy in observation or experiment are necessary to the successful applicant.

APPLICATION FOR ADMISSION

Well in advance of the opening of the semester for which the student seeks admission, he should correspond with and preferably have a personal interview with the Dean or department chairman of his proposed field of study, to discuss the University's facilities for guidance in this field, the applicant's qualifications, and the possibilities of an effective doctoral program. If an application for admission is indicated, the student will be advised concerning the details of application procedure.

LANGUAGE REQUIREMENTS

A reading knowledge is required of two foreign languages important in the student's field of interest. One language examination must be passed at the time of beginning doctoral study. The second must be passed before admission to the qualifying examination and within one year of the start of study for the qualifying examination.

STUDY FOR QUALIFYING EXAMINATION

Upon admission to study for the qualifying examination the student is assigned a faculty adviser, who directs his studies. The adviser assigns fields of learning to insure the student's breadth of knowledge and support research in his central field, advises him concerning the scope and content of these fields of study, and

guides him in preparation for his examination. A minimum of 30 semester hours of formal study beyond the Master's work is required prior to the qualifying examination. This requirement does not include any deficiencies to be made up or language courses taken to meet the language requirement.

The purpose of the qualifying examination is to ascertain that the student's breadth of background and intellectual development are adequate to support doctoral research and investigation in his central field. The qualifying examination is both written and oral and usually extends over a period of six days. It is given by a special committee consisting of members of the Faculty and other specialists. Upon favorable report of the examiners to the Dean through the appropriate department chairman, the student is admitted to candidacy for the degree, to pursue his specialized study and research under the supervision of a designated member of the Faculty.

The examination is the sole test of the student's ability to qualify for admission as a candidate for the degree, and to enter the second stage of his doctoral discipline.

RESEARCH, DISSERTATION, FINAL EXAMINATION

The student admitted to candidacy for the degree requests as Director of Research the member of the Faculty under whom he wishes to conduct his research. The Faculty member may accept or reject such request. The research area is approved by the Director and the appropriate department chairman or the Dean. Throughout the remainder of the doctoral program, the candidate is responsible solely to his Director, in his research and in the presentation of his dissertation. Work on the dissertation is equivalent to a minimum of 24 semester hours.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

The candidate must submit to the appropriate department four complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation no later than the date specified in the calendar. One copy of the abstract is for inclusion in the Abstracts of Doctoral Dissertations issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication "Dissertation Abstracts" which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for its file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the School Office. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available

for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

Upon approval of the dissertation by the Director, the candidate is presented for his final examination.

The final examination is oral and is open to the public. The candidate must demonstrate a mastery of his special field of interest and of the materials and techniques used in the research. The committee of examiners includes members of the Faculty competent in the research field or in closely related subjects and may also include qualified experts brought to the University especially to participate in the examination. When the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the committee of examiners recommends him for the degree of Doctor of Science.

RESIDENT AND CONTINUOUS STUDY

All of the work for the degree must be done in residence (on the campus), except when special permission is granted to conduct research in an approved off-campus facility. The student must maintain "continuous registration" in the School, even when granted a leave of absence. Failure to do so breaks the student's registration, and he must apply for readmission to doctoral study under whatever new conditions and regulations are set up by the department chairman and approved by the Dean.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the qualifying examination or as a candidate engaged in doctoral research. However, the qualifying examination must be completed within five years of the date of admission, and the entire degree program must be completed within seven years. After admission the student may apply for his qualifying examination whenever his adviser believes that he is prepared to take it; his research and specialized study may be undertaken with whatever concentration of time meets the approval of his Director of Research. Normally a minimum of two years of full-time study and research is spent in meeting the requirements for the degree.

THE CENTER FOR MEASUREMENT SCIENCE

THE CENTER, UNDER THE DIRECTION of the School of Engineering and Applied Science, is a cooperative activity of the University, industry, and government providing education, research, and service programs related to measurement. It was established by the University in 1960.

The principal, but not exclusive, activities of the Center are:

- The education of persons for careers in measurement science;

- The development and improvement of measurement, standardization, and calibration techniques, apparatus, and data—with particular reference to high precision;

- The provision of staff and facilities to industry for research and consultation on measurement problems in industry, including the maintenance of primary standards of measurement directly traceable to the national standards;

- The publication of results of research, manuals of practice and procedures, and information related to measurement science.

The Center maintains relations with industry and government through its Associate Program, in which interested individuals, companies, or other organizations may participate. The mutual communication, collaboration, and support made possible by this program bring vitality to the Center activities and insure attention to the needs of industry and government.

Through these and other activities the Center serves as a source of personnel competent in measurement science, as an instrument for collaborative research on measurement problems, and as a service organization providing expert capability to industrial and government organizations in the solution of their measurement problems.

EDUCATION PROGRAM

The Education Program of the Center consists in part of curricula offered by the School, which prepare the student to assume responsibilities in the field of measurement science. The curricula are integrated, to permit a student to terminate his formal education at any level, or to proceed to the next level. Programs lead to the degrees of Bachelor of Science, Master of Science, and Doctor of Science.

In addition to the degree programs, the education program includes seminars, special conferences, and short courses offered from time to time.

RESEARCH PROGRAM

The research program of the Center includes all aspects of research and development related to measurement science. Research and/or development may be undertaken as independent studies by staff members for the Center, as studies for a sponsor under contract, or by personnel of Associates of the Center assigned to the Center to undertake the specific work. Associates receive publications of the Center; certain publications may be restricted in distribution.

SERVICE PROGRAM

The Center arranges for consultation and assistance of the Faculty and Staff and the use of the facilities of the Center in connection with specific problems in measurement. The program is restricted to the use of the Associates of the Center.

The Service Program also makes it possible for Associates to engage the various resources of the University, through the Center, as may be desirable and feasible, in solution of their problems in measurement.

FEES AND FINANCIAL REGULATIONS

FEES PAID BY STUDENTS cover only a portion of the cost of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the institution make up the difference.

The following fees and financial regulations were adopted for the academic year 1968-69. (See page 40 for projected tuition increases for 1969-72.)

Tuition Fees

For undergraduate study:

Full-time program (12 or more hours a semester)..... \$912.50

Part-time program, for each semester hour..... 60.00

For graduate study* (except for those students registered before July 1, 1967, who wish to continue payments in accordance with the plan (see below) in effect prior to that date):

For each semester hour for which the student registers..... 60.00

Doctoral students not enrolled under the payment plan in effect before July 1, 1967, are required to register for minimum hour-loads,† as follows:

1. Full-time doctoral students must register for a minimum of 12 semester hours a semester until 24 hours of work have been completed beyond the qualifying examination; and a minimum of 4 semester hours a semester thereafter until the satisfactory completion of the final examination.
2. Part-time doctoral students must register for a minimum of 6 semester hours a semester until 24 hours of work have been completed beyond the qualifying examination; and for a minimum of 4 semester hours a semester thereafter until the satisfactory completion of the final examination.

For candidates for Master's degrees registered prior to July 1, 1967, who wish to continue payments according to the plan in effect prior to that date:

Total fee, including the Master's Comprehensive Examination‡..... 1,750.00

* Registration in thesis courses (Engr. 299-300) entitles the student, during such registration, to the advice of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional semester will be granted, requiring payment of a "Continuous Registration" fee (see page 40). If the preparation of the thesis extends beyond the three-semester period, approval for this extension will be required and the student must repeat the course Engineering 300 and pay tuition as for a repeated course, provided the over-all time limit for earning the degree is not exceeded.

† No minimum hour-load is required during the summer sessions.

‡ Students completing payment of the total fee before completion of the required work (including thesis and comprehensive examination) will be granted registration on a "continuous registration—no charge" basis for one semester immediately following the semester in which tuition payment is completed.

Students requiring additional time for completion of required work after completion of payment of the total fee and the expiration of a semester "continuous registration—no charge" must register each semester and pay the normal "continuous registration" fee. See page 25 for regulation governing Military Leave.

For students registered for the degree of Doctor of Science prior to July 1, 1967, who wish to continue payments according to the plan in effect prior to that date:

For work leading to and including the qualifying examination*	\$1,700.00
For work leading to and including the final examination*	1,700.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be defrayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Bachelor's, Master's, Doctor's degrees.....	\$25.00
Fee for binding Master's Thesis.....	10.00
Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation	55.00
Residence Hall Fees (see page 49)	

Special Fees

Application fee (degree candidate), nonrefundable.....	25.00
Tuition deposit, nonrefundable:	
Charged each entering or readmitted full-time undergraduate student, except early decision freshmen.....	100.00
Charged each freshman admitted by early decision plan.....	200.00
Application for room reservation, nonrefundable:	
Charged each resident student, except early decision freshmen.....	100.00
Charged each resident student admitted by early decision plan.....	200.00
Admission tests (when required).....	6.00-12.00
Late-registration fee, for failure to register within the designated period....	15.00

* If the tuition for the first stage is paid in full at the beginning of the first stage of the doctoral discipline, the candidate is entitled to five successive semesters on a "continuous registration—no charge" basis. If still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

If the tuition is paid in four installments at the rate of \$425.00 a semester at the beginning of the first stage of the doctoral discipline, no continuous registration fee will be charged if a third year is needed for completion of the first stage of the degree requirements. If still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

If the tuition is paid in six installments at the rate of \$283.33 a semester and if still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

If the tuition for the second stage is paid in full at the beginning of the second stage of the doctoral discipline, the candidate is entitled to three successive semesters on a "continuous registration—no charge" basis. If still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

If the tuition is paid in two installments at the rate of \$850.00 a semester at the beginning of the second stage of the doctoral discipline no continuous registration fee will be charged if a second year is needed for completion of this stage of the discipline. If the tuition is paid in four installments at the rate of \$425.00 a semester at the beginning of the second stage and still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course.....	\$ 2.00
Withdrawal fee, charged in special cases.....	5.00
Service fee, for deferred payment plan (see "Payment of Fees" below).....	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
Continuous registration fee, to maintain "continuous registration" status during any semester of absence from the University or after completion of tuition requirements*—due and payable on the official days of registration.....	60.00
Engineers' Council fee, charged each student in the School of Engineering and Applied Science for each semester or any part thereof except the summer term.....	1.50
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the date deadline set by the instructor†.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Student and Alumni Career Services Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate when the student withdraws or is dismissed from the University.

PROJECTED TUITION INCREASES 1969-72

In order that students and their parents may plan more realistically for a total four-year period, tuition increases for the academic years 1969-70, 1970-71, and 1971-72 have been estimated as follows:

Increase by year (full-time undergraduate students):		\$100.00
1969-70		100.00
1970-71		100.00
1971-72		
Increase by semester hour (graduate and part-time undergraduate students):		4.00
1969-70		4.00
1970-71		4.00
1971-72		

It is not possible to project future economic data with certainty. Barring unforeseen developments, however, the above listed tuition schedule will be followed.

* Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither tuition fee nor residence requirements for the degree. (See also footnotes on pages 38 and 39.)

See page 25 for regulation governing Military Leave.

† A student who drops a chemistry course before the end of the semester must check out of the laboratory at the next regular laboratory period.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Student Accounts Office at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 6, 1968 (for the fall semester) and March 19, 1969 (for the spring semester). A service fee of \$5 will be due and payable at the time of registration for the use of this deferred payment plan. The University will not obligate itself to notify the student in advance of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 reinstatement fee and have been officially reinstated by the Student Accounts Office.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Student Accounts Office.

An auditor pays all fees chargeable to the student registered for credit except the late registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D.C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple-year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of Student Financial Aid.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean of the School. Notification to an instructor is not an acceptable notice (see "Withdrawal," pages 22-33 and 31).

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

Fall Semester

Withdrawal dated on or before September 27, 1968.....	90 per cent
Withdrawal dated September 30 to October 11, 1968.....	75 per cent

Withdrawal dated October 14 to October 25, 1968.....	50 per cent
Withdrawal dated after October 25, 1968.....	none

Spring Semester

Withdrawal dated on or before February 7, 1969.....	90 per cent
Withdrawal dated February 10 to February 21, 1969.....	75 per cent
Withdrawal dated February 24 to March 7, 1969.....	50 per cent
Withdrawal dated after March 7, 1969.....	none

2. For a *change in status from full-time to part-time student* or for *partial withdrawal* by a *part-time student*, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.
3. A student enrolled in a full-time program who drops or adds a course and continues to be in a full-time program will have no financial adjustments of tuition made other than those involving course fees.

In no case will tuition be refunded or reduced because of absence from classes. Payment applies only to the semester for which a registration charge is incurred, and in no case will this be credited to another semester.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

FINANCIAL AID

THE GEORGE WASHINGTON UNIVERSITY has a program of financial assistance for undergraduate students (including transfer students) of scholarships, low-interest long-term loans, work scholarships, or any combination of these resources. Financial aid is awarded on the basis of the student's scholastic record, financial need, and qualities of leadership and character.

Renewal of any type of financial aid for succeeding years will depend upon the student's academic record and need. Awards may be altered or withdrawn at any time if the academic record of the student is unsatisfactory.

Scholarships are awarded for the academic year. Application must be filed by entering freshmen by February 1 preceding the academic year of the award. Applications and supporting credentials for all other types of financial aid must be filed by February 1 (entering freshmen), March 1 (enrolled undergraduate or entering transfer students) preceding the academic year of the award for the fall semester; by October 31, for the spring semester; and by May 1, for the summer session*.

Credentials required of all financial aid applicants:

1. *Application for Financial Aid* forms for entering freshmen and transfer students will automatically be forwarded to the student when the Office of Admissions notifies the Office of Student Financial Aid that Application for Admission has been received and the student indicates he will apply for financial aid. Students presently enrolled in the University may obtain forms upon request, at the Office of Student Financial Aid.

2. *Parents' Confidential Statement* (Code 5246) must be filed by all applicants who are under twenty-five years of age, married or single, dependent on or independent of parental support. Students who are applying for aid for the academic year (September-June) should file the Parents' Confidential Statement with the College Scholarship Service, Box 176; Princeton, N.J. 08540; Box 1925, Berkeley, Calif. 94701; or Box 881, Evanston, Ill. 60204, no later than ten days prior to the deadline dates for application, see dates above. Students applying for financial aid for the spring semester and/or the summer session *only* should file the Parents' Confidential Statement directly with the Office of Student Financial Aid, The George Washington University.

* A Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least 8 semester hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

Entering freshmen may obtain forms at local secondary schools or upon request to the College Scholarship Service. All other applicants may obtain forms, upon request, at the Office of Student Financial Aid.

An undergraduate *transfer* student is not eligible for scholarship funds until he has completed one full semester (13 hours) at this University with a minimum average of *B* (3.0). A transfer student is, however, immediately eligible for other types of financial aid.

SCHOLARSHIPS

Scholarships are awarded for the academic year unless otherwise specified and are credited in equal parts for each semester. Each holder must carry a full schedule of academic work during the period for which the scholarship is awarded.

Applications should be submitted on or before February 1, for the following academic year and, unless otherwise specified, should be addressed to the Office of Student Financial Aid. Awards are made during the month of April. All scholarships begin with the fall semester.

The following scholarships are limited to students in the School of Engineering and Applied Science. The University offers many others which are open to engineering students. A special bulletin containing a complete list and full information concerning fellowships and scholarships may be obtained from the Office of Student Financial Aid, The George Washington University, Washington, D. C. 20006.

*Association of Federal Communications Consulting Engineers Scholarship (1958).**—A full-tuition scholarship, including laboratory fees and books. Available to a student of good character, promise, and leadership working toward the degree of Bachelor of Science (Electrical Engineering) and intending to major in communications.

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten for scholarship assistance to students entering the School of Engineering and Applied Science who would not otherwise be able to pursue such professional study. Available for undergraduate and graduate study.

Henry Harding Carter Scholarship (1896).—Established by Maria M. Carter in memory of her husband to aid a deserving student who is preparing for the civil engineering profession. Available to students working toward the degree of Bachelor of Science (Civil Engineering).

Henry Parsons Erwin Scholarship (1955).—Established by Helen B. Erwin as a memorial to her husband, a former Trustee of the University. A partial scholarship for a student in Engineering or Applied Science.

Louis E. Giles Memorial Scholarships (1966).—Bequest of Susie E. Giles in honor and memory of her husband for scholarships to undergraduate and graduate students in the School of Engineering and Applied Science requiring financial assistance.

The George Washington University Board of Trustees Scholarships.—Full- and partial-tuition undergraduate scholarships which will begin in the fall semester and extend for four successive academic years, provided the holder maintains a *B* average, as well as a high standard of deportment, and continues to

* This scholarship is renewable and is, therefore, not available each year for award to an incoming freshman.

be in financial need. Candidates must plan to select a curriculum leading to a Bachelor's degree.

FELLOWSHIPS AND ASSISTANTSHIPS

The following fellowships, graduate scholarships, and assistantships are available. Admission to graduate study is a prerequisite for consideration. Unless otherwise specified, a letter of application should be submitted not later than March 1 preceding the period for which the award is to be made. It should be directed to the Dean of the School and addressed to The George Washington University, Washington, D.C. 20006.

University Teaching Fellowships.—Assigned for the academic year. The applicant is expected to be a prospective candidate for a Doctoral degree. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,800 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Stipends vary with the workload of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments. Application should be made to the Dean.

Graduate Teaching Assistantships.—Open to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service, and receives, depending upon his teaching or laboratory assignment, up to \$2,800 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Application should be made to the Dean.

National Aeronautic and Space Administration Predoctoral Fellowships.—Available to graduate students in space-related sciences. Fellowships include tuition, stipends of from \$2,400 to \$2,800 (on a twelve-month basis), and stipulated allowances for dependents; renewable for second and third years. Application should be made to the Graduate School of Arts and Sciences, The George Washington University, Washington, D.C. 20006, prior to March 1, for the following academic year.

National Science Foundation Graduate Fellowships.—Fellowships, including tuition, fees, stipends of \$2,400 to \$2,800 (on a twelve-month basis), and allowances of \$500 a year for dependent spouse and each dependent child. Available in the following fields: mathematical, physical, medical, biological, or engineering sciences; anthropology; economics; geography; history and or philosophy of science; linguistics; political science; psychology; sociology and interdisciplinary areas such as geochemistry and oceanography. No awards are made for clinical areas of study, education, business, or social work. Application should be made to the Fellowship Office, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

LOAN FUNDS

The following loan funds are available to students in the University in accordance with the qualifications placed thereon by the donors. Students should

direct inquiries to and file applications with the Office of Student Financial Aid. Applicants for a National Defense Student Loan or a United Student Aid Fund loan must file a *Parents' Confidential Statement* and an *Application for Financial Aid*. Deadline for submitting applications with supporting credentials is February 1 (entering freshmen), March 1 (enrolled undergraduate or entering transfer students), April 1 (graduate students) preceding the academic year of the award; October 31, for the spring semester; and May 1, for the summer session*. Application for admission to the University is a prerequisite for consideration.

Jessie B. Martin Loan Fund (1967).—Established by friends of Jessie B. Martin, former Editor of Academic Publications at the University. An emergency student loan fund available to needy students.

National Defense Student Loan Program.—This fund is available to full-time graduate or undergraduate students with a "superior academic background" who are in need of financial assistance. An undergraduate student may borrow for college expenses a sum not exceeding \$1,000 a year and, during his entire undergraduate program, a sum not to exceed \$5,000. A graduate or professional student may borrow a maximum of \$2,500 a year. The total loans made to such a student for all years, including any loans made to him as an undergraduate, may not exceed \$10,000.

Warren Stickler Memorial Loan Fund (1966).—A fund established by the Precision Measurements Association as a memorial to Warren Stickler is available to students in the Measurement Science curricula.

United Student Aid Fund Loan.—This fund is available to full-time graduate and undergraduate students who have completed the freshman year and are in need of financial assistance. Undergraduates may borrow up to \$1,000 a year; graduate students may borrow up to \$1,500 a year. The total loans made to a student, including any loans made to him as an undergraduate, may not exceed \$7,500. Application must be made and approved through the University by the date deadlines stated above.

John Brewster Willis, Jr., Loan Fund in Mechanical Engineering.—A fund of \$1,515, established by Mrs. William L. Lane as a memorial to her nephew, John Brewster Willis, Jr., is available to Mechanical Engineering students (graduate or undergraduate) who are primarily interested in aeronautics.

EDUCATIONAL OPPORTUNITY GRANTS

Educational Opportunity Grants, as authorized by the Higher Education Act of 1965, are available to a limited number of undergraduate students with substantial financial need. The applicant must show academic promise, be accepted for enrollment on a full-time basis, or be a currently enrolled full-time student in good standing.

Students may receive Educational Opportunity Grants for each year of their higher education although the maximum duration of a grant is 4 years. As an academic incentive to students, an additional award of \$200 may be given to those students who were in the upper half of their college class during the preceding academic year.

* A Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least 8 semester hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

Federal regulations require that the grant be matched with funds from the University. It should be noted that a student must accept the matching funds unless he is a bonafide recipient of a known State Scholarship which is equal to the amount of the Educational Opportunity Grant.

COLLEGE WORK-STUDY PROGRAM

The Federal College Work-Study Program provides part-time jobs both on and off campus for full-time students with financial need. Applications and information are available at the Office of Student Financial Aid.

STUDENT EMPLOYMENT

The Student Career Services Office maintains a registry of both full-time and part-time positions available in the Washington area for undergraduate and graduate students.

After registration, interested students may apply at the Student Career Services Office, 2033 G Street, N.W., for interviews and referrals to positions for which they are qualified.

STUDENT SERVICES AND ACTIVITIES

THE OFFICE OF THE DIRECTOR OF STUDENT SERVICES develops policies and procedures to complement the University's formal instruction program. This program is implemented through the offices of the Dean of Men, Dean of Women, Director of Housing, Health Services, Student and Alumni Career Services, International Students, Psychological Clinic, and Student Activities.

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Director of Housing, The George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing near the University may be obtained at this Office. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive, with his notification of acceptance, a University residence hall brochure, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. The medical examination form must be completed by the applicant and his physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a \$100 nonrefundable housing deposit (\$200 for applicants admitted by early decision). Early decision students must submit the deposit by January 15. The housing deposit is credited toward the fall-semester room charge. Rooms are leased for the academic year, and payment must be made in advance of each semester.

All unmarried freshman men and women and sophomore women under the age of 21 who are enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents or guardians. In exceptional cases, permission to live elsewhere may be granted by the Director of Housing. Women who have completed two academic years as full-time students are permitted to live off campus.

1968-69 Residence Hall Rates for Two Semesters

	Room and Food Service	Room only
For Men:		
Adams Hall		
double room (upperclassmen).....	\$1,050	\$500
triple room (freshmen).....	1,000	450
Calhoun Hall (upperclassmen).....	1,050	500
Madison Hall (graduate and professional students).....	1,050	500
Mitchell Hall (freshmen)		
single room.....		
double room.....	1,150	600
Welling Hall		
single room.....	1,050	500
double room (upperclassmen).....	1,050	500
	970	420
For Women:		
Crawford Hall (upperclass women).....	1,150	600
Graduate Women's Hall.....	1,235	685
Strong Hall (upperclass women)		
single room.....		
double room.....	1,235	685
Thurston Hall.....	1,150	600
	1,150	

FOOD SERVICE

Residents of Thurston Hall and all resident freshman men under twenty-one are required to participate in the food service plan. The plan is optional for all other residents. All meal cards admit to the dining rooms in Thurston, Mitchell, and Welling halls. Residents of Adams, Calhoun, Madison, Crawford, and Strong Halls are given preference for the use of the dining room on the second floor of the Student Union. Residents of Thurston and Mitchell Halls may use the Student Union dining room only by special permission, which is granted those whose schedules allow very limited dining periods. Well-balanced meals are served cafeteria style seven days a week (20 meals). Food service payment does not cover University holidays or vacation periods.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 10 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only. Medical privileges include (1) physical examination* of all applicants for

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

courses in Physical Education who lack reports, approved by the Office of Health Services, of examinations by home physicians; (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period; the necessity to be determined by the Director of Health Services.* All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Physical Education.

HEALTH AND ACCIDENT INSURANCE

In addition to the above services, the Health Services Staff has arranged for Health and Accident Insurance, on an elective basis, for all full-time students. This policy covers the participant for 12 months, whether at home, at the University, or elsewhere.

Current yearly cost is \$31.20 (subject to change) payable at the fall registration. Arrangements can be made to pay in two installments of \$15.60 at the fall and spring registrations.

This policy contract is between the individual student and the insurance carrier and is accepted at any hospital or emergency room that accepts this type of medical work. Details of the policy are available at the Health Services Office.

VETERANS EDUCATION

The Office of the Registrar, Luther Rice Hall, 2121 Eye Street, N.W., assists students entitled to educational benefits as veterans or war orphans with any problems which may arise concerning their benefits. This Office also processes

* See rule (5) for exception.

certifications of enrollment and attendance to the Veterans Administration so that monthly allowances will be paid.

When feasible, students entitled to benefits as veterans or war orphans should consult the Office of the Registrar prior to submitting application to the Veterans Administration. All such students should obtain the instruction sheet issued by the Office of the Registrar, which sets forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration, and which includes other information of general interest.

The Veterans Administration is at 2033 M Street, N.W., Washington, D.C. 20421.

WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT (Chapter 35, Title 38, U. S. Code)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces, or a child of a person who has a permanent total disability resulting from such service, or a child of a person who died as a result of such a disability may be eligible for educational assistance under this act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

VOCATIONAL REHABILITATION (Chapter 31, Title 38, U. S. Code)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

VETERANS' READJUSTMENT BENEFITS ACT (Chapter 34, Title 38, U. S. Code)

A veteran who has served on active duty after January 31, 1955, or a person who is currently on active duty may be eligible for as much as 36 months of educational assistance under this act. Applications should be submitted to the Veterans Administration prior to registration.

PSYCHOLOGICAL CLINIC

The George Washington University Psychological Clinic, 718 Twenty-first Street, N.W., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Individual psychotherapy is available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$40; for graduates of the University, \$40; for community clients, \$65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.

THE READING CENTER

The Reading Center, 2018 Eye Street, N.W., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school, college, and adult levels.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted, and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students, college students, and adults are offered throughout the year at stated intervals. Special classes for study skills and spelling are also available. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Reading Clinic.—The fee for individual diagnosis is \$60; for individual instruction, \$8 a lesson; for semi-individual instruction, \$6 a lesson; for instruction in small groups with common reading difficulties, \$5 a lesson.

Reading Improvement.—Classes are offered for students on high school and adult levels, including college and graduate students. Students are grouped according to needs, and emphasis is placed on vocabulary, study skills, spelling, and speed of comprehension. The fee for full-time students currently registered in the University is \$60 for twenty lessons; for other clients, \$100 for twenty lessons.

All fees are payable in advance at the Office of the Cashier.

THE SPEECH AND HEARING CLINIC

The Speech and Hearing Clinic, Suite 804, Joseph Henry Building, 2100 Pennsylvania Avenue, N.W., offers diagnostic and remedial work for children and adults with such communication difficulties as stuttering, lisping, cleft palate speech, cerebral palsied speech, and voice, articulatory, and hearing problems. Diagnostic and remedial work is also available for persons with nonstandard language usage due to such conditions as hearing loss, brain damage, mental retardation, and environmental factors.

Fees.—The fee for an initial evaluation is \$20. Fees for additional specialized testing are dependent on the testing involved. The fees for individual speech or hearing therapy range from \$3 to \$10 a session. Fees are reduced for full-time students enrolled in the University and for persons receiving group therapy. Fees are payable at the Office of the Cashier.

STUDENT UNION

The Student Union, 2125 G Street, N.W., and the Student Union Annex, 2127 G Street, N.W., are centers of student life on the University campus. The cafeteria on the first floor of the Union building serves breakfast, lunch, and dinner, as well as snacks. The second floor is reserved as a dining hall for resident students, and the third floor features a modern vendeteria and delicatessen. The University Ticket Office, on the first floor, handles the tickets for all nonathletic University events and outside events offering student rates. The Student Union Annex houses the Student Activities Office, which maintains information concerning student organizations and campus events. The meeting rooms and offices for the Student Council, other campus organizations, and student publications are also in the Annex. The facilities of the Student Union make it possible for the nonresident student to participate more fully in campus life.

UNIVERSITY BOOK STORE

The University Book Store is in a separate building at the quad entrance to the Union. The Book Store carries a wide selection of school supplies and sundry items in addition to text books for all courses.

DAVIS-HODGKINS HOUSE

The Davis-Hodgkins House, 731 Twenty-second Street, N.W., is the student center of the School, providing lounges, reading rooms, and student organization offices. The House provides convenient, comfortable facilities for the exchange of ideas and good fellowship.

INTERNATIONAL HOUSE

International House, 2129 G Street, N.W., is the campus center for students from foreign countries. It serves also as the headquarters of the International Students' Society which seeks to promote international friendship and understanding by welcoming to its membership students from all countries, including those from the United States.

The Adviser to International Students has his Office in International House and is available for consultation each day throughout the school week.

STUDENT AND ALUMNI CAREER SERVICES OFFICE

The Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., provides assistance to degree-seeking students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which private companies, government agencies, service organizations, public school systems, and universities participate. Prospective teachers may establish permanent credentials files in the Student and Alumni Career Services Office. This service includes files for alumni seeking college and university faculty and administrative positions. The Office also provides individual counseling for students and alumni wishing career guidance.

STUDENT ACTIVITIES

The offices of the Director of Student Services, Dean of Men, and the Dean of Women are responsible for all nonacademic phases of student life, such as student activities, social life, and housing. The deans are available at all times for individual counseling concerning personal adjustment to university life. All student activities are coordinated through the Student Activities Office in the Student Union Annex. This Office operates under the direction of the Director of Student Services.

STUDENT GOVERNMENT

Student Council.—The University believes in encouraging the development of a sense of civic responsibility in its students by delegating to them such authority in student activities as is consistent with established policy and regulations. To this end, the organization of the University includes the Student Council, which, under the guidance of the Director of Student Services, is responsible for the conduct of all student activities. The Student Council is elected annually by the student body.

Committee on Student Life.—The major function of the Committee on Student Life is to review, with authority to reverse, any act of the Student Council or of any other group engaged in extracurricular activities.

A secondary function is advisory. The Committee may offer recommendations to the Student Council on which the Council must act at its next regular meeting. It may also make recommendations to the President of the University at his request or on its own initiative.

Despite its broad powers, the Committee acts only when it believes a vital interest of student life at the University has been overlooked. The Committee, appointed annually by the President, is composed of 13 members, at least 6 of whom are students and at least 6 faculty members.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in the University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to participate in student activities.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics.

THE ENGINEERS' COUNCIL

The Engineers' Council is the student governing body for the School of Engineering and Applied Science, composed of elected representatives from each level class and from the graduate student body, from each student organization in the School, the Business Manager of the *Mecheleer*, and the House Manager of the Davis-Hodgkins House. The purpose of the Council is to provide liaison between the student body of the School and the Faculty, Administration, and Student Government of the University in all matters affecting the general interests and welfare of the student body, the School, or the University. The Council is maintained financially by the Engineers' Council Fee paid by each student in the School, and sponsors the engineers' student magazine, *Mecheleer*, the Engineers' Mixers; Engineers' Ball; and the Annual Christmas Tree Cere-

mony in the University Yard. Council meetings are open to all students in the School.

The Council acts as the directing body for *Mecheleciv*, which is published six times a year and is free to all students in the School. This magazine includes campus and alumni news, a calendar of events, news of the student organizations, and articles on engineering by students and faculty members. The magazine is published by a student Board of Editors and a volunteer student staff. The control and administration of all student activities are outlined in a separate bulletin called "Information and Regulations Governing Student Activities."

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in basketball, baseball, tennis, golf, rifle, soccer, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Intersorority Athletic Board cooperate with the Department of Physical Education in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, canoeing, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, music, and radio broadcasting through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Enosnian Debating Society; Folk Music Society; Station WRGW; University Chorus, Madrigal Singers, Orchestra; and University Players. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Recreation Program.—The Student Council and the departments of Physical Education arrange dances, movies, and trips at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which nationally known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Art Exhibits.—The work of locally, nationally, and internationally known artists is shown in monthly exhibits in The George Washington University Art Gallery in Lisner Auditorium.

Engineers' Mixers.—At the beginning of each semester the Engineers' Council sponsors a program of orientation, good fellowship, and entertainment to introduce new students.

Engineers' Week.—Sponsored by the Engineers' Council to acquaint high school students and their parents with the School of Engineering and Applied Science.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the Annual Homecoming Musical and other activities.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree (given and decorated by the Students of the School of Engineering and Applied Science), the singing of Christmas music, and service projects.

Engineers' Ball.—The Engineers' Council sponsors the Engineers' Ball, a social event for students and alumni.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science, pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Alpha Lambda Delta. A national fraternity established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman women who attain a scholastic average of at least 3.50.

Delphi.—An intersorority honorary society.

Delta Sigma Rho-Tau Kappa Alpha.—A national forensic society.

Gate and Key.—An intrafraternity honorary society.

Mortar Board.—A national society for senior college women, stressing leadership, scholarship, and service.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Scarlet.—A service honorary society for sophomore and junior men.

Phi Eta Sigma.—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.

Sigma Tau.—A national engineering honorary fraternity, the purpose of which is to recognize scholarship and professional attainment.

Tassels.—A service honorary society for sophomore women.

Tau Beta Pi.—A national engineering honorary fraternity, the purpose of which is to recognize distinguished scholarship and exemplary character.

PROFESSIONAL ORGANIZATIONS

American Society of Civil Engineers (Student Chapter).

American Society of Mechanical Engineers (Student Chapter).

Institute of Electrical and Electronic Engineers (Student Chapter)

Theta Tau (Gamma Beta Chapter).—A national professional (engineering) fraternity. Membership by invitation to outstanding students who have completed successfully at least the first year in the School of Engineering and Applied Science.

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship winners), Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Ice Hockey Club, Interfraternity Council, International Students' Society, Intersorority Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Senior Panhellenic Association, Station WRGW, Student Council, University Pep Band, Young Democrats Club, Young Republican Club.

SOCIAL FRATERNITIES

Alpha Epsilon Pi, Delta Tau Delta, Kappa Sigma, Phi Sigma Delta, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Alpha Mu, Sigma Chi, Sigma Phi Epsilon, Sigma Nu, Tau Epsilon Phi, Tau Kappa Epsilon.

SOCIAL SORORITIES

Alpha Delta Pi, Alpha Epsilon Phi, Chi Omega, Delta Gamma, Delta Phi Epsilon, Delta Zeta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, Phi Sigma Sigma, Pi Beta Phi, Sigma Delta Tau, Zeta Tau Alpha.

STUDENT PUBLICATIONS

The Cherry Tree (the annual), *The University Hatchet* (weekly newspaper), *Mecheleev* (engineers' publication), *The Potomac* (literary magazine), *The Wig* (humor magazine).

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling. Religious services in various traditions are provided regularly for the University community as announced.

INTER-FAITH FORUM

The Inter-faith Forum consists of a weekly luncheon discussion activity called "As I See It," which features guests who are asked to speak and participate in open discussion on topics of a religious, social, or moral nature.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Christian Science Organization, Eastern Orthodox Club, Episcopal Student Association, Lutheran Stu-

dent Association, Newman Foundation, Unitarian Universalist Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

PRIZES

Norman B. Ames Memorial Award.—Established by many friends of Professor Ames and awarded annually to a graduating senior of the School of Engineering and Applied Science who is nominated by his fellow students as having made significant contributions to the students in the School of Engineering and Applied Science and to the School and University.

Martin Mahler Prize in Materials Testing.—A one-year membership in the American Society for Testing Materials awarded to the upper division or graduate student in engineering who submits the best reports on tests in the Materials Laboratories course with preference given to prestressed concrete tests.

School of Engineering and Applied Science Distinguished Scholar.—A certificate awarded annually by the Faculty of the School of Engineering and Applied Science to the senior who graduates with the highest scholastic standing. The student's name is engraved on a plaque displayed in Tompkins Hall of Engineering.

Sigma Tau Prize.—A medal awarded annually by Xi Chapter to the freshman in the School of Engineering and Applied Science who maintains the highest scholastic standing in the work of the entire year.

Theta Tau Activities Plaque.—A plaque awarded annually by Gamma Beta Chapter to the senior in the School of Engineering and Applied Science with the most outstanding record in activities for the entire period of his attendance.

COURSES OF INSTRUCTION

THE COURSES OF INSTRUCTION in the School of Engineering and Applied Science are listed on the following pages. Courses numbered from 1 through 199 are planned for undergraduate credit, certain courses may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean; those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

The number of semester hours credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving three hours of credit each semester is marked (3-3), and a semester course giving three hours credit is marked (3). A semester hour consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Courses offered in other colleges, schools, and divisions of the University, are described in the catalogues of those schools. Students are referred to those catalogues for information on courses in Mathematics, Physics, Chemistry the Humanities and Social Sciences, and other subjects of interest.

Applied Science

UNDERGRADUATE

7 Flight in Space (3)

Introduction to the methods of science and the continuity of development of these methods from prehistoric times to the present. Basic differences of method in the sciences and in the humanities are explored. Explanation of mechanics of space flight, rocketry, and flight on interplanetary or earth-bound missions. Prerequisite: high school algebra, geometry, and physics.

9-10 Fields and Waves I-II (3-3)

General concepts of fields through development of Laplace and Maxwell's equations. Analysis of particle motion in fields, using vector calculus. Basic wave mechanics of various types of time-varying fields. Prerequisite: Physics 32. Prerequisite or concurrent registration: Applied Science 114.

29-30 Linear Networks I-II (3-3)

Analysis of components of linear systems: electrical, mechanical, fluid, and thermal. Steady-state and transient analysis of linear systems composed of electrical and mechanical components. Solutions of network problems using differential equations, Fourier series, Laplace transforms. Properties and characteristics of linear networks, including vibrations, degree of freedom, resonance, energy, and power; instruments for their measurement. Network topology. Prerequisite: Applied Science 113-14.

31 Linear Systems (3)

Analysis of linear systems using operational methods. Topics in the study: analysis, and design of linear systems, including reactance functions, n-port networks, spectra analysis, matrices, filters, and complex variables. Introduction to active networks. Prerequisite: Applied Science 30, Engineering 18.

50 Information Transmission, Modulation, and Noise (3)

Basic concepts in information theory, transmission of information, modulation systems, periodic sampling and pulse modulation, noise in transmission systems. Prerequisite or concurrent registration: Applied Science 31, Engineering 19.

55 Control Systems (3)

Analysis and design of linear feedback control systems. Applications of stability criteria, steady-state and transient analyses. Prerequisite: Applied Science 30 or 65, Engineering 18.

59-60 Introductory Analytical Mechanics I-II (4-4)

Mechanics of particles and rigid bodies; virtual work, energy, and momentum principles. Deformable body mechanics; stress and strain concepts; bending, twisting, and buckling of slender beams. Prerequisite or concurrent registration: Applied Science 113.

62 Soil Mechanics (3)

Analysis of lateral earth pressures, bearing capacity, foundations, and slope stability, plus design problems involving the engineering properties of soils. Prerequisite: Applied Science 70, 122.

63 Fluid Mechanics (3)

Basic laws of incompressible fluid flow and their application. Introduction to boundary layer theory. Prerequisite: Applied Science 60.

64 Compressible Fluid Flow (3)

Basic laws of compressible fluid flow, with application to nozzles, pipe flow, and fluid machinery. Introduction to thin airfoil theory. Prerequisite: Applied Science 63, 85.

65 Dynamics of Linear Systems (3)

Vibration of single- and multiple-degree of freedom linear systems, transient and steady-state analysis, vibration of distributed parameter systems, and solution by numerical methods. Prerequisite: Applied Science 59, 114.

66 Advanced Dynamics (3)

Lagrangian and Hamiltonian formulations of mechanics; central force motion, rigid body dynamics, and small oscillations. Introduction to gyro dynamics. Prerequisite: Applied Science 65.

- 70 Earth Science (3)**
Formation and properties of soils and rock, climatology, hydrology, ground, water and river flow, seismology. Prerequisite: Applied Science 60, 63.
- 71-72 Mechanics of Deformable Solids I-II (3-3)**
Introduction to the theories of elasticity, plasticity, and viscoelasticity; with applications in solid mechanics. Prerequisite: Applied Science 60
- 85 Thermodynamics (3)**
Fundamental concepts from classical and statistical viewpoints. Basic laws and their application to simple systems. Introduction to kinetic theory, probability theory, and partition functions. Prerequisite: Applied Science 59.
- 87 Heat Transfer Theory (3)**
Introduction to theoretical concepts of heat conduction, convection, and radiation; with applications. Prerequisite: Applied Science 9, 114.
- 101 Materials Science (3)**
Crystallographic structure, imperfections, dislocations, thermal characteristics, diffusion, phase diagrams. Electronic structure, basic solid types, transport properties, semiconductors, dielectrics, magnetism. Prerequisite: Applied Science 60, 85, 114.
- 105-6 Measurement Science I-II (3-3)**
Fundamental concepts in measurement science; standards, error, accuracy, precision, measurement, and comparability. Design of experiments. Prerequisite: senior status.
- 113-14 Engineering Analysis I-II (3-3)**
Use of ordinary and partial differential equations, linear algebra, Fourier series, Laplace transformation, and complex variables in the solution of engineering problems. Prerequisite: Mathematics 24. Applied Science 113 is prerequisite to 114.
- 115 Engineering Analysis III (3)**
Solution of engineering problems using sets and functions; probability models; distributions and functions; statistical concepts and methods, including hypothesis testing, correlation, and regression. Prerequisite: Mathematics 24.
- 120 Electromagnetic Waves (3)**
Brief review of Maxwell's equations, Poynting's theorem, scalar and vector potentials, waves in unbounded and bounded media, waveguides and cavity resonators, transmission line theory and the Smith Chart, radiation from infinitesimal and half-wave dipoles, introduction to the theory of arrays, connection between field theory and circuit theory. May be taken for graduate credit. Prerequisite: Applied Science 10.
- 121-22 Structural Theory I-II (3-3)**
Theory of determinate and indeterminate structures using both classical and modern approaches. Prerequisite: Applied Science 60.
- 130 Electrical Energy Conversion (3)**
Fundamentals of electromechanical energy conversion, concepts of efficiency and losses, development of the equations of an ideal generalized

machine from both the circuit theory and field theory approach, the generalized machine as a d-c machine and various a-c machines, 3-phase machines, and electrical power systems. Prerequisite: Applied Science 30

132 Active Networks (3)

(Formerly Applied Science 32)

Analysis of active networks, using topology, matrices, signal-flow graphs, and transfer functions. Properties of active networks, including stability, passivity, activity, reciprocity, and feedback. Topics in scattering matrices, linear vector space, state-space, and interconnection of networks. May be taken for graduate credit. Prerequisite: Applied Science 31, Engineering 18.

162 Engineering Introduction to Medicine I (3)

The first of a two-semester sequence. Designed to give the engineering student a communicating knowledge of medicine. Material presented is based on the medical school curriculum and is taught from a systems viewpoint with the major emphasis on concepts. Covers preclinical medical subjects. May be taken for graduate credit. Prerequisite: junior status.

163 Engineering Introduction to Medicine II (3)

The second semester of a two-semester sequence covering the clinical aspects of medicine. Designed to introduce the engineering student to some of the practical aspects of medicine. Involves considerable interaction with physicians and other medical personnel. May be taken for graduate credit. Prerequisite: Applied Science 162.

198 Undergraduate Projects (1 to 3)

Design or research projects, as arranged.

GRADUATE

201 Automatic Control Systems I (3)

Linear systems. Single and multiple loops. Dynamic behavior and stability analysis by Routh-Hurwitz test, root-loci, Nyquist criterion, and Bode diagrams; performance criteria and response, independent control, compensation techniques. Synthesis and approximation methods in frequency and time domains.

202 Automatic Control Systems II (3)

Nonlinear systems with time-variable parameters. Stability criteria, Liapunov theory, Mathieu equation. Topological methods, phase portraits, limit cycles, switching systems, optimum smoothing, and prediction methods. Synthesis of nonlinear systems. Prerequisite: Applied Science 201.

203 Automatic Control Systems III (3)

Sampled-data systems. Analysis methods; stability, random signals, Z-transform, statistical analysis. Pulsed systems and networks. Adaptive and optimizing systems. Digital computer control systems. Synthesis and design of sampled-data control systems. Prerequisite: Applied Science 202.

211 Mathematical Methods in Applied Science I (3)

Methods and theory of functions of complex variables and partial differential equations and their application. May be taken concurrently with Applied Science 212. Prerequisite: graduate status.

- 212 Mathematical Methods in Applied Science II (3)**
Methods and theory of tensor analysis, calculus of variations, and integral equations and their application. May be taken concurrently with Applied Science 211. Prerequisite: graduate status.
- 217 Analytical Mechanics (3)**
Fundamental principles, generalized coordinates, variational principles and Lagrange's equations, nonholonomic systems, Hamilton's equations, theory of small oscillations. Prerequisite or concurrent registration: Applied Science 211.
- 219 Mechanics of Continua (3)**
Mechanics of elastic, plastic, and viscous solids, and of fluids; introduction to theory and formulation of basic equations. Prerequisite: graduate status.
- 220 Nonlinear Mechanics (3)**
Topological and analytical methods in nonlinear mechanics, nonlinear resonance, relaxation oscillations. Prerequisite: Applied Science 217.
- 221 Theory of Elasticity I (3)**
General theory of elasticity for finite deformation, elastic potential and energy principles, stress-strain relations for isotropic media, theory of small deformations, superimposed on finite deformations, infinitesimal theory of elasticity, applications. Prerequisite: Applied Science 212.
- 222 Theory of Elasticity II (3)**
Theories of plane strain and generalized plane stress, stress-strain relations for orthotropic and transversely isotropic media, strain energy function for basic crystal classes, elastic waves, thermoelasticity. Prerequisite: Applied Science 221.
- 223 Celestial Mechanics (3)**
General equations of motion, Lagrange's planetary equations, disturbing function, Delaunay and Poincaré variables, secular inequalities, lunar theory, precession and nutation. Prerequisite: Applied Science 217.
- 230 Rheology (3)**
Rheological behavior of fluids, plastic and viscoelastic solids; invariant equations of state; applications. Prerequisite: Applied Science 212 and 219, or 221.
- 231 Hydrodynamics (3)**
Methods for solution of hydrodynamic problems involving incompressible inviscid fluid flow. General equations of inviscid fluid flow; fluid deformation. Prerequisite: Applied Science 211.
- 232 Compressible Fluid-flow Theory (3)**
Conservation laws, flow discontinuities, exact solutions, and linearized theory. Applications of the hodograph method, unsteady flows, and self-similar solutions. Introduction to inviscid hypersonic flow. Prerequisite: Applied Science 231.
- 238 Theory of Dislocations (3)**
Physical significance and applications of dislocation, torsion, and curvature tensors; dislocations and plastic flow in crystals; continuously distributed dislocations. Prerequisite: Applied Science 212.

239 Theory of Solids I (3)

Crystalline structure, elastic properties, lattice vibrations, thermal characteristics, order-disorder transformations in alloys. Prerequisite: graduate status.

240 Theory of Solids II (3)

Electron theory of solids, cohesive energy, band theory, magnetic and dielectric properties, applications. Prerequisite: Applied Science 239.

242 Magnetohydrodynamics (3)

Study of the interaction of fluids with electromagnetic fields. Generalized Navier-Stokes and energy equations, magnetogasdynamic and magnetohydrodynamic approximations, boundary-layer theory, statistical theory of turbulence, generalized Von Karman-Howarth equation, Boltzmann transport equation. MHD generators and devices. Prerequisite: Applied Science 120 or equivalent.

254 Selected Topics in Structural Mechanics (3)

Nonlinear deformations of structures, boundary value problems, thermal stresses, impact problems, and limit analysis of structures. Prerequisite: Engineering 250.

259 Nonlinear Mechanics of Continua (3)

Development of fundamental concepts of nonlinear media and their applications. Prerequisite: Applied Science 212 and 219, or 221.

260 Theory of Plates and Shells (3)

Theories of finite deformations of plates, complex variable methods, Reissner's theory of bending of electropic plates, general bending theory of shells, theory of shallow shells, boundary value problems. Prerequisite: Applied Science 221.

261 Theory of Plasticity (3)

Introduction to mathematical theory of plasticity; tensor invariants, theory of conditions of compatibility, constitutive equations, characteristic surfaces for perfectly plastic solids; applications. Prerequisite: Applied Science 212 and 219, or 221.

262 Theory of Structural Stability (3)

General criteria for stability; buckling of elastic, plastic, and viscoelastic columns, beams, plates, and shells; variational and numerical methods. Prerequisite: graduate status.

263 Field Analysis and Potential Theory (3)

General study of the theory of potentials as used to facilitate solution of problems in electromagnetic theory, mechanics, thermodynamics, optics, and gravitation. Emphasis on mathematical methods such as: Green's functions, variational methods, principal axis transformations, and multi-dimensional Fourier transforms. Prerequisite: Applied Science 120 or equivalent, and 211.

264 Electrodynamics (3)

Special theory of relativity and the Lorentz Transformation; Minkowski's Four Dimensional Formulation; Maxwell's equations in four-dimensional tensor notation; relativistic Lagrangian and Hamiltonian for a particle; electromagnetic stress tensor; radiation by charges moving at relativistic

velocities; Schrodinger and Dirac wave equations, including electromagnetic fields. Introduction to quantum electrodynamics. Prerequisite: Applied Science 120 or equivalent, and 211.

266 Electromagnetic Wave Propagation (3)

Hertz Potential; Hankel Transforms; dipole radiating over a finitely-conducting earth; pulses in dispersive media; phase and group velocity; propagation in electrically and magnetically anisotropic media such as dielectric crystals, ferrites, and the ionosphere. Variational methods applied to obstacles in waveguides. Prerequisite: Applied Science 120 or equivalent, and 211.

267-68 Advanced Network Analysis I-II (3-3)

Matrix algebra and topology, network theorems, correlation of time and frequency domains, network functions, Hilbert transforms, positive real functions, quadratic forms, realizability of network functions, signal-flow graphs, spectrum analysis, filter theory.

269-70 Linear Network Synthesis I-II (3-3)

Positive real functions, realizability conditions, synthesis of driving-point functions, synthesis of transfer functions, active network synthesis, approximation problem.

273-74 Communication Theory I-II (3-3)

Time-domain analysis, waveform analysis, ideal filters, signal distortion, sampling theorems, analytic signals, signal comparison. Random variables and probability distributions, random processes, ensemble average correlation and power spectra, ergodicity, linear systems with stochastic inputs, filtering and prediction of stationary time series, modulation with random processes, nonlinear devices, statistical detection of signals. Prerequisite: Applied Science 211.

275-76 Physical Electronics I-II (3-3)

Physical principles underlying the operation of various electronic devices using quantum mechanics and solid-state physics: study of insulators, dielectrics, semiconductors, conductors and magnetic materials: devices studied include vacuum tubes, gas tubes, transistors, tunnel diodes, photosensitive devices, parametric and maser action.

277-78 Information Theory I-II (3-3)

Laws and theorems of probability, statistical measure of random variables, measure of the uncertainty function and information, noiseless coding, communication channels, channel capacity. Fundamental theorems, error-correcting codes, parity-check coding, information sources, introduction to Markov chains, channels with memory, continuous channels.

280 Classical Thermodynamics (3)

Equilibrium states, state variables, equations of state, First and Second Laws, thermodynamic systems, thermodynamic potentials, phase changes, kinetic theory, transport phenomena. Prerequisite: graduate status.

282 Real Gas Dynamics (3)

Introduction to real gas effects; dissociation, ionization, and radiative heat transfer. Prerequisite: Applied Science 232.

285 Reaction Kinetics (3)

Theoretical aspects of kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems. Prerequisite: Applied Science 280.

295 Statistical Thermodynamics (3)

Distribution functions; Boltzman, Bose, and Fermi statistics; partition functions. Relations between statistical mechanics and thermodynamics. Thermodynamics of an ideal gas and a perfect crystal. Prerequisite: Applied Science 280.

298 Research (arr.)

Basic research projects, as arranged.

Engineering

UNDERGRADUATE

10 Hydraulic Engineering (3)

Hydraulic system design; including pipe networks, river and channel flow, drainage and irrigation, water supply, and sewerage. Prerequisite: Applied Science 70.

11-12 Structural Design I-II (3-3)

Concepts of structural design, elastic and plastic design of metal structures, elastic design and ultimate strength design of reinforced and prestressed concrete structures, individual design problems. Prerequisite: Applied Science 122, Engineering 113.

18 Engineering Electronics I (3)

Introduction to physical electronics; diode characteristics and their use in the design of diode circuits; analysis and design of transistor and vacuum tube linear amplifiers; analysis of transistor and vacuum tube characteristics and measurements of electronic device characteristics; design of linear voltage, current, and power amplifiers. Prerequisite: Applied Science 29, 113.

19 Engineering Electronics II (3)

Analysis and design of class A, B, and C amplifiers; feedback, direct coupled, and stagger-tuned amplifiers; analysis and design of AM and FM modulators and demodulators; analysis and design of diode and controlled rectifier power supplies; introduction to the use of gas tubes and solid state rectifiers and switches. Prerequisite: Engineering 18.

20 Engineering Electronics III (3)

Analysis and design of clipping, clamping, and gating circuits using solid state and tube components; design of multivibrator, trigger, and relaxation oscillator circuits; analysis and design of negative resistance and nonlinear oscillators; design of linear voltage and current sweep oscillators; analysis and design of wave shaping and pulse forming circuits. Prerequisite: Engineering 19.

- 21 Applications of Computers (3)**
Solution of problems on digital computers, using machine language, Fortran and data processing and numerical methods. Writing, debugging, and running programs on a digital computer.
- 31 Thermal Power (3)**
Analysis and design of system components in heat-power, gas and vapor turbine, internal combustion engine, heat pump, and nuclear power systems. Prerequisite: Applied Science 85.
- 49 Electrical Measurement (3)**
Electrical measurements, from direct current through radio frequencies; techniques: detectors; bridges; measurement of current, voltage, power, resistance, capacitance, inductance, energy, phase angle, frequency and time; dielectric and magnetic measurements; topics in high-frequency measurement including field strength, signal-to-noise ratio, impedance, attenuation. Prerequisite: Applied Science 30, Engineering 18.
- 52 Introductory Instrumentation (3)**
Theory, design, and application of simple transducers; design of instrumentation of one-type systems; analysis and design of simple instrumentation. Prerequisite: Engineering 18.
- 53 Instrumentation (3)**
Analysis and design of transducers and instrumentation for measurement in systems containing multiple quantities of one type or mixtures of types. Prerequisite: Engineering 52.
- 54 Mechanical Measurement (3)**
Precise measurements of mass and length; mechanical and interferometric methods.
- 55 Heat Measurement (3)**
Temperature scales; measurement by resistance thermometry, thermocouples, pyrometry, vapor pressure thermometry; heat transfer quantities and their measurement; calorimeters, flow calorimeters.
- 56 Pressure Measurement (3)**
Experimental techniques for quantitative measurement of pressure; working gages, standards, calibration procedures; methods and apparatus for observations near atmospheric pressure, in the high pressure range, and in the vacuum range.
- 86 Energy Conversion (3)**
Cycles and entropy in energy conversion; solid-state phenomena; energy forms and equations of state; thermal cycles; thermoelectric, thermionic, and fuel cell devices; MHD generators; photoelectric principles. Prerequisite: Applied Science 85.
- 100 Introductory Electrical Engineering Laboratory (3)**
Experiments in the use and characteristics of instruments for measuring electrical quantities. Verification of network theorems and electronic theory. Study of electrical devices through experimentation. Prerequisite: Applied Science 9, 29. Prerequisite or concurrent registration: Engineering 18.

101 Measurement Laboratory (3)

Design of test and test measurement of various electrical, mechanical, and heat quantities in simple and complex systems. Data treatment and reporting of results. Introduction to quality control operations. Prerequisite: Applied Science 115. Prerequisite or concurrent registration: Applied Science 105.

102 Measurement Projects Laboratory (3)

Individual selected measurement problems of some complexity. Prerequisite: Engineering 101. Prerequisite or concurrent registration: Applied Science 106.

105-6 Electrical Engineering Laboratory I-II (3-3)

Experiments and design projects involving electrical and electromechanical devices and systems. Laboratory exercises in electromagnetic wave propagation, electronics, control systems, networks, switching circuits, and energy conversion. Prerequisite: Engineering 100 and senior status.

111 Mechanical Engineering Laboratory (3)

Experimental analysis of mechanical, fluid, thermal, thermomechanical, and electromechanical devices. Prerequisite: senior status.

113 Engineering Materials (3)

Mechanical properties of engineering materials, considering design and production aspects. Selected experiments involving physical properties of engineering materials. Prerequisite: Applied Science 60.

121 Switching Networks (3)

Introduction to switching algebra. Analysis and design of switching devices and logic circuits. Minimization techniques, electronic implementation of switching logic. Number systems, codes, and geometric interpretation of binary systems. Logical design of functional units. May be taken for graduate credit. Prerequisite: Engineering 21.

122 Digital Computers (3)

Design of digital computers and their subsystems: logic of machine components; binary and decimal machine arithmetic; logical flow diagrams; timing and control; memory, arithmetic and I/O units; machine language programming. May be taken for graduate credit. Prerequisite or concurrent registration: Engineering 121.

131-32 Mechanical Design I-II (3-3)

Design of machine elements and systems including shafts, beams, springs, clutches, brakes, gears; machines as systems of element. Prerequisite: senior status.

140 Engineering Economics (3)

Theory and practice of engineering economics. Consideration of economic factors in engineering design decisions. Prerequisite: senior status.

141 Urban Systems (3)

(Formerly Urban Planning)

Engineering aspects of urban planning, including transportation, water supply and sewerage, public utilities, safety and convenience, and natural environment. Prerequisite: senior status.

142 Design Projects (3)

Selected problems of current importance to be solved by teams applying planning, analysis and synthesis, and optimization techniques. Prerequisite: senior status.

144 Environmental Engineering (3)

Water and waste-water collection and treatment, pollution and pollution prevention, radiation problems, and other environmental problems. Prerequisite: senior status.

171 Machine and Assembly Language Programming (3)

Introduction to machine and assembly language programming in fixed and variable word-length computers. Techniques in addressing and data handling. Use of subroutine linkages, pushdown lists, loops, and input-output subroutines. Use of a macro assembly language. Sorting, merging, arrays, and data fields in data processing. May be taken for graduate credit. Prerequisite: Engineering 21.

172 Algorithmic Methods and High-level Languages (3)

Introduction to high-level procedural and problem-oriented languages. List processing, string processing, and information retrieval. Numerical methods in scientific programming. Development of computing algorithms. May be taken for graduate credit. Prerequisite: Engineering 21.

198 Engineering Research (1 to 3)

Applied research and experimentation projects, as arranged. Prerequisite: junior or senior status.

GRADUATE**201 Metal Structures (3)**

Structural behavior and failure of metal structures, materials, residual stresses, analysis and design of connections and members, theory of plastic collapse of structures, plastic design.

202 Ultimate Strength of Reinforced Concrete Structures (3)

Modes of failure of reinforced concrete structures; experimental data on failure; ultimate strength concepts for the analysis of beams, slabs, and columns.

203 Prestressed Concrete Structures (3)

Structural behavior and failure of prestressed concrete structures; materials; theory, analysis, and design of prestressed concrete structures and members.

204 Geotechnics in Soil Mechanics (3)

Dynamic geology in the formation and properties of soils; Boussinesq and Westergaard equations for stresses and deformations in soil masses; analysis of settlement; flow of water in soils; solutions of Laplace-type equations for seepage involving foundations, earth dams, and wells; theory of frost action.

205 Theoretical Soil Mechanics (3)

Theories of soil strength and conditions for failure, bearing capacity of footings, pile foundations, theories of lateral earth pressure, stability of slopes, soil dynamics. Prerequisite: graduate status.

206 Foundation Engineering (3)

Principles of soil mechanics and structural mechanics in the analysis and design of spread footings, mat and pile foundations, retaining walls, sheet piling, and water front structures. Prerequisite: graduate status.

211 Experimental Structural Analysis (3)

Experimental analysis of truss, rigid frame, plate, and shell structures; large- and small-deflection models, similitude. Prerequisite: Engineering 250.

212 Concepts of Structural Design (3)

Advanced seminar relating theoretical and experimental knowledge to the problems of function, form, mechanical behavior, failure, and analysis of structures. Prerequisite: Engineering 201, 202, or 203; and 250.

216 Advanced Dynamics (3)

Vibrations of lumped-parameter systems; rigid body dynamics; vibrations of distributed-parameter systems including flexible strings, membranes, beams, and plates. Prerequisite or concurrent registration: Applied Science 211.

218 Optical Electronics (3)

Design of optical systems. Study of the primary aberrations, quantum theory of radiation, coherence, detection of radiation; with application to electron lenses, lasers, masers, infrared and ultraviolet devices, photoconductors and photodiodes. Prerequisite: Applied Science 275 or equivalent.

219 Nonlinear Electronics (3)

Analysis and design of electronic components and systems operating as switching, sweeping, gating and pulse generators; study of multivibrators, negative resistance devices and amplifiers, nonlinear operation of oscillators.

220 High-frequency Electronics (3)

Analysis and design of electron-tube and solid-state devices used for the generation and amplification of UHF and higher-frequency signals.

221 Industrial Electronics (3)

Applications of rectifiers, thyratrons, silicon controlled rectifiers, and transistors for power control; control amplifiers, including transistor, magnetic, and dielectric amplifiers; induction and dielectric heating; timing and counting circuits; reliability and automatic checking equipment.

222 Electronic Measurements in Medicine (3)

Theory of measurements in biological areas, techniques for electronic measurements on biological specimens, current problems in medical metrology stressing electronic systems.

223 Instrumentation in Medical Electronics (3)

Medical telemetry systems, medical use of the computer, engineering techniques in patient treatment, principles of good medical instrumentation.

230 Science of Materials (3)

Structure as related to physical properties. Strengthening mechanisms in solids. Experimental procedures in X-ray diffraction, microradiography, and transmission electron microscopy. Lecture and laboratory. Prerequisite: graduate status.

231 Finite-state Machines (3)

Analysis and design of sequential networks, state diagrams, flow table, equivalence of states, races, transition maps, output tables, hazards, synchronous and asynchronous sequential networks. State assignment problem, partitions, partition pairs, information flow inequalities, clocks, state realizations, parallel and serial decompositions, machine networks and decompositions. State identification. Prerequisite: Engineering 121.

232 Computing Systems (3)

Design of large scale digital computer systems; parallel arithmetic units, interrupt systems and parallel processing. I/O units, interfacing problems, timing and control, software-hardware tradeoffs, memory systems, A/D and D/A conversions. Prerequisite: Engineering 122.

233 Microwaves and Components (3)

Electromagnetic waves in guided systems, high-frequency transmission lines, impedance matching techniques, wave guides, ferrite isolators and Faraday rotation, directional couplers, cavities and microwave components.

234 Antennas (3)

General solution of Maxwell's equations in terms of current sources, the far field approximations, radiation from current distributions, field equivalence theorems, the geometrical optics approximation, aperture antennas, receiving antennas, the theory of arrays, and applications to specific antennas and antenna types. Prerequisite: Applied Science 120 or equivalent.

235 Communication Systems (3)

Characteristics of signals and transmission channels, frequency and time multiplexing, telemetry, comparison of systems for optimum performance, communication links, aspects of space communications. Prerequisite: Applied Science 274 and 278.

236 Microwave Communication Systems (3)

Analysis and design of ultra-high-frequency systems, transmitters and receivers, television, radar systems, navigational aids.

243 Space Communication Systems (3)

Theoretical and application aspects of space communications, as related to communication satellite systems, scientific satellites, manned space missions, and deep space missions.

244 Spacecraft Systems Design (3)

Space environment; structure, propulsion, control, and instrumentation of spacecraft; launch, orbit, transit, and re-entry problems; bioastronautic considerations.

250 Analysis of Structures (3)

Classical and modern methods of analysis of statically indeterminate structures, including matrix analysis, variational methods, theory of plastic collapse. Prerequisite: Applied Science 211, 212.

252 Structural Dynamics (3)

Analysis of elastic structures under various dynamic loadings, both steady-state and transient; including vibrations of rigid frames, plates, and thin shells. Prerequisite: Engineering 250.

255 Analysis of Plate Structures (3)

Bending and stretching of thin elastic plates under lateral and in plane loading with various boundary conditions, continuous plates and plates on elastic foundations, buckling of plates, theory of folded plate structure. Prerequisite: Applied Science 211, 212.

256 Analysis of Shell Structures (3)

Theory of curved surfaces; general membrane theory, bending theory for shells of revolution; applications to specific shapes and loadings, pressure vessels, domes; buckling of shells. Prerequisite: Engineering 255.

260 Systems Engineering I (3)

Concept of system structure and organization. Linear and nonlinear systems analysis, simulation and modeling; statistical and gaming methods in systems analysis. Introduction to optimization methods and flow graph theorems.

261 Systems Engineering II (3)

Design of systems, subsystems, and components. Dynamics and stability of systems; adaptive systems; system logic, tolerances, variations, and disturbances; signals and noise; system optimization. Prerequisite: Engineering 260.

270 Advanced General Metrology (3)

Topics in the conceptual, physical, and mathematical aspects of measurement, standards, design for precision measurement, and measurement at extreme values.

271-72 Probability and Statistics of Metrology I-II (3-3)

Probability distributions, discrete and continuous distributions; sampling; combinatorial analysis; stochastic processes; conditional probability; correlation; analysis of variance; design and analysis of experiments. Latin Square experiments, factorial experiments, block and lattice design.

273 Precise Microwave Measurements (3)

Precise measurement of power, frequency, impedance, wavelength, and attenuation at microwave frequencies; characteristics and Q of resonant devices; calibration of microwave components; design of microwave experiments.

274 Precise Optical Measurements (3)

Optical constants of lens systems; aberration; resolving power; illumination in focal plane; image evaluation, magnification, index of refraction; color and color temperature.

275 Precise Electrical Standards (3)

Concepts of standards, errors; design of resistance, capacitance and inductance standards; d-c voltage standards; frequency and time standards; dielectric and magnetic materials, attenuation standards, power standards, transfer standards.

284 Combustion Processes (3)

Thermodynamics of combustion, chemical kinetics, flame propagation, combustion of liquids and solids, detonation processes. Prerequisite: Applied Science 280.

286 Laminar Viscous Flow (3)

The Navier-Stokes equations; asymptotic solutions to flow at low and high Reynolds numbers. Solution to boundary layer equations. Study of viscous shock structure. Prerequisite: Applied Science 231 or 232.

287 Finite Automata (3)

Effectively computable functions, recursive functions, regular expressions, single and multiple tape Turing machines, probabilistic automata, neural nets, reliability of automata, artificial intelligence, learning machines, threshold logic, adaptability, pushdown automata. Prerequisite: Engineering 231, 232.

288 Digital Computer Programming Systems (3)

(Formerly Advanced Digital Computer Programming)

Introduction to the design of computer software. Design of monitor systems. Communication between components of systems. Design of loaders, input-output control systems, and utility systems. Prerequisite: Engineering 171.

289 Analog and Hybrid Computers (3)

(Formerly Analog Computers)

Analog computer components and electronics. Analog computer control and programming. Computer solution of linear and nonlinear differential equations, system simulation and modeling, analog-digital converters and interface, hybrid systems. Prerequisite or concurrent registration: Engineering 122.

290 Design of Compilers and High-level Languages (3)

Design of problem-oriented languages. Design of translators and compilers with regard to grammar, syntax, semantics, and pragmatics as it affects their design. Programming methods used in the construction of compilers and translators, context-free languages, pushdown lists. Prerequisite: Engineering 288.

291-92 Energy Conversion I-II (3-3)

Thermodynamics of energy conversion, duality of matter, semiconductor theory, thermoelectric engines, thermionic converters, magnetohydrodynamic engines, junction diodes, photovoltaic effects, solar cells, free energy fuel cells, conditions of equilibrium, construction of fuel cells. Prerequisite: Applied Science 280.

293-94 Heat Transfer I-II (3-3)

Physical and mathematical concepts of heat transfer phenomena in conduction and convection under steady and unsteady state conditions including dimensional analysis, turbulence and boundary layer theory for convection; physical and mathematical concepts of heat transfer by radiation, configuration factors, network method and solution by determinants. Prerequisite: Applied Science 280.

298 Research (arr.)

Research as arranged.

299-300 Thesis Research (3-3)

Engineering Administration

GRADUATE

204 Administration of Engineering Contracts (3)

Study of the total contracting process: including initial budget preparation and justification, actions leading to the execution of a contract, and administration of the contract to completion; considered from the viewpoints of the industrial and government buyer and the seller of technical materials and services.

207 Personnel Administration (3)

Study of the functions of managing personnel, with emphasis on relationships within organizations which utilize the services of engineers and scientists; employment, management, development, wages and classification, union relations, safety, health and collateral benefits and services, human relations, personnel research in the field.

210 Engineering Law (3)

Legal principles and procedures of interest to engineers, the American Legal System, contracts and specifications, liability of professional engineers, antitrust problems, agency relationships, negotiable instruments, patent and proprietary rights, special problems in research and developmental contracts.

211-12 Engineering Administration I-II (3-3)

Comprehensive and systematic study of the administrative process with emphasis on industrial, scientific, and engineering environments. Planning: objectives, prediction, policies, plans and characteristics of plans. Organizing: theory of organization, structure, authority, specialization, delegation, staff and committees. Directing: leadership, managing human and material resources. Controlling: setting standards, evaluating performance, using system feedback data for correction and improvement.

253 Production Management (3)

Planning, organizing, and control of production; forecasting techniques; material management; methods of loading and scheduling production processes; electronic methods in production control. Organization and administration of the plant engineering function with emphasis on maintenance control programs.

254 Automatic Data Processing Systems (3)

Logic of computers, arithmetic and control units, systems analysis for data processing applications, systems design, systems economics, relation to scientific decision processes.

255 Administration of Research and Development (3)

Study of contemporary practices of administrators of scientific and engineering research and development for the purpose of finding uniformities, characteristics, and conceptual schemes; relation of such findings to accepted managerial concepts, and projection of their implications on contemporary managerial hierarchies and organizational structures.

261 Economic Analysis in Engineering Planning (3)

Important concepts and theories employed in economic analysis of engineering projects. Application of various analytical processes. Detailed practice in pursuit of solutions to, and adjustment of, persistent and current problems in this field.

269-70 Operations Research I-II (3-3)

Basic concepts and techniques of operations research as applied to problems in industrial, governmental, and military decision making. History and orientation of operations research; concept of quantitative decision making; decisions under certainty, risk and uncertainty; utility; allocation models. Game theory; queuing theory; inventory, sequencing, and replacement models; Monte Carlo, simulation, and gaming. Prerequisite: Applied Science 115 or equivalent.

272 Problems in Operations Research (3)

Field experience in operations research on a team basis. Each small group locates an actual problem and formulates solution by operations research models. Class evaluation of progress.

273 Mathematical Methods for Operations Research (3)

Mathematical methods used in the operations research areas of mathematical programming; game, queuing, and inventory theory. Matrices and linear vector spaces, differential-difference equations, integral transforms, mathematical probability, stochastic processes.

275 Linear Programming (3)

Basic computational, theoretical, and applied areas with emphasis on the general linear programming problems; simplex procedures; duality problems; parametric linear programming and sensitivity analysis, transportation problem.

276 Theory of Games (3)

Study of mathematical models with applications to the relationships among independent competitive entities (persons or organizations in environment of competition, bargaining, bidding), selection of optimum strategies, minimax concept, connections with linear programming and decision functions, two-person and n-person zero and nonzero sum games.

277 Queuing Theory (3)

Study and analysis of waiting line systems, birth and death processes, arrival and service patterns, single and multi-channel systems, variations in queuing disciplines.

278 Nonlinear and Dynamic Programming (3)

Static and dynamic optimization problems including convex, quadratic, and separable programs; network problems; problems in the calculus of variation. Gradient, Lagrangian, and penalty functions techniques.

279 Inventory Control (3)

Application of mathematical techniques to decisions regarding when and how much to produce or purchase, control of production and inventory systems, various mathematical models of inventory systems with deterministic and stochastic demands, forecasting demand, interaction of production and inventory systems, simulation models.

281-82 Systems Analysis and Management I-II (3-3)

Systems analysis as applied to management. Properties, nature, structure, and organization of systems; conceptualization of total system. Operational functioning and description of systems. Boundary and feedback concepts. Objectives of systems analysis, concept of planning, problem definition, choosing objectives for analysis. Relationship with other fields. Systems analysis as a methodology for exploring alternatives, assumptions, criteria, and risk. Decision making, measurement, and value theory in systems analysis.

285 Seminar: Administrative Problems (3)

Individual analysis of complex administrative problems, with group evaluation and discussion. Prerequisite: degree candidacy and 18 semester hours graduate credit.

298 Research (arr.)

Basic or applied research in engineering administration.

ALUMNI ASSOCIATIONS

THE GENERAL ALUMNI ASSOCIATION

THE OBJECTIVES OF THIS ASSOCIATION are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members or those eligible members who are current contributors (dues or otherwise) to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE ENGINEER ALUMNI ASSOCIATION OF THE GEORGE WASHINGTON UNIVERSITY, INC.

The Engineer Alumni Association was organized in 1936 and was incorporated in 1962. It has worked closely with the General Alumni Association since its organization. Its objects are to unite the graduates and Faculty of the School of Engineering and Applied Science in closer fellowship, to promote the general welfare of the School of Engineering and Applied Science and of the University at large, to foster activities of the engineering organizations recognized by the University, and to advance the profession of engineering in general.

OFFICERS OF THE ASSOCIATION FOR 1967-68

President.—Edward A. Wareham III, B.E.E. 1953; 5004 Rodman Road, Washington, D.C.

Vice President.—William H. Holt, B.S. in Engr. 1957. LL.B. 1961; 4300 23d Road N., Arlington, Va.

Secretary.—Raymond P. Morales, B.S. (E.E.) 1965; 7300 Churchill Road, McLean, Va.

Treasurer.—Harvey J. Flatt, B.E.E. 1963; 10636 Montrose Road, Bethesda, Md.

THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees: nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets and extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period.

the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other government offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences (undergraduate); the Graduate School of Arts and Sciences; the professional schools, which include the National Law Center and the schools of Medicine, Engineering and Applied Science, Education, Government and Business Administration, and Public and International Affairs; the College of General Studies; the Division of University Students; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

THE UNIVERSITY LIBRARIES

The Library collections of the University are housed in the University Library and in the departmental libraries of law and medicine.

These collections contain approximately 437,000 volumes—318,000 in the University Library, 84,500 in the Law Library, and 34,500 in the Medical Library. Approximately 20,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 3,000 periodicals.

All students registered in the University have the privilege of using the University Library. Its stacks are open, and all students are welcome to browse at their leisure. The Student Identification Card, issued upon the payment of fees, must be presented when books are borrowed for outside use.

The loan period for most books available for outside circulation is 30 days, nonrenewable except for graduate students. A fine of 50 cents is charged for each day a book is overdue. Any book which circulates is subject to recall by the Library at any time if needed for reserve or other use. Reserve books must be used in the reserve reading room when the Library is open, except that they may be withdrawn for overnight use beginning at 8:30 p.m. A fine of 50 cents is charged for each hour or fraction thereof that a reserve book is overdue. Grades of a student are withheld until his library record is clear.

All students using the University Library are expected to be familiar with its detailed regulations, printed in the *Student Handbook* and available separately on application to any of the Library's service desks.

The University Library is open from 8:30 a.m. to 10 p.m. each class day, Saturday 9 a.m. to 5 p.m., and from 2 to 10 p.m. on Sunday.

CONSORTIUM OF UNIVERSITIES OF THE WASHINGTON METROPOLITAN AREA, INC.

Five universities in Washington, D. C.—The American University, The Catholic University of America, The George Washington University, Georgetown University, and Howard University—have formed a Consortium through which they are coordinating the use of their respective graduate facilities. As the arrangement develops, the graduate student who is in an approved program leading to a graduate degree in any one of the universities will increasingly have the opportunity to select from the combined offerings of all five universities the particular courses which best meet his needs.

Participation is open to campus graduate degree candidates. Excluded are students in Canon Law, Dentistry, Medicine, Nursing, Social Work, and Theology.

Law students and undergraduate students are also excluded from participation, with the following two exceptions:

(1) Candidates for the Master of Laws degree at The George Washington University and Georgetown University are eligible for participation.

(2) Undergraduate degree candidates may take foreign language courses at any of the participating institutions, with the exception of first- and second-year courses in French, German, Russian, and Spanish.

Special courses, such as private instruction (as in music or art) or tutorial study, courses in preparation for passing the language requirement, and summer school courses, are excluded from the Consortium program.

Graduate students are encouraged to study the announcements of graduate programs of all five universities. In order to participate in the Consortium program the student must obtain the approval of his adviser. *A student may audit but may not take for credit, courses at another university that are available at his own.*

Registration forms and instructions are available from the registrar of the student's university. The student registers at his own university for all Consortium courses. He pays only to his own university its charges for graduate study.

Specific inquiries should be addressed to the Registrar.

AIR FORCE RESERVE OFFICERS' TRAINING CORPS (AFROTC)

The Department of Aerospace Studies at Catholic University of America, under provisions of an agreement between The George Washington University and Catholic University, offers a two-year AFROTC program.

The successful completion of the program qualifies the student for a reserve commission in the United States Air Force upon graduation. Exceptionally well-qualified students may receive a Regular Officer appointment. The program is designed to provide education that will develop skills and attitudes vital to the career professional Air Force Officer. Emphasis is placed on qualities of leadership and other attributes essential to progressive advancement into positions of increasing responsibility as commissioned officers in the Air Force.

Full-time students who have two years remaining toward a baccalaureate or graduate degree are eligible to enter the program. Each student must meet physical and mental standards set by the Air Force. Candidates must complete six weeks of Field Training, conducted by the Air Force at designated

bases, during the summer preceding enrollment into the program. A student must have and maintain a quality-point index of 2.0 or its equivalent. Applications must be made *early* in the academic year prior to the one of enrollment in the program, so that all qualification criteria may be met in time for selection consideration in the spring.

The program is offered at Catholic University. At the time of enrollment, a registration fee must be paid. There is no tuition charge. Students in the program receive a monthly retainer fee of \$50. Uniforms and textbooks are furnished without cost. Students participating in the Field Training phase are paid at a rate established by the U.S. Government (approximately \$120 a month) and are also furnished travel to and from the Field Training base.

Interested students should consult the Department of Aerospace Studies, Catholic University of America, Washington, D.C. 20017.

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B.S. in M.E. 1920, The George Washington University

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THE GEORGE WASHINGTON UNIVERSITY

COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE SCHOOL OF ARTS AND SCIENCES, 1893

THE SCHOOL OF MEDICINE, 1882

THE NATIONAL LAW CENTER, 1865

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

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THE SUMMER SESSIONS, 1906

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COLLEGE
OF
GENERAL STUDIES

1968-1969

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Education.....	Dean of The School of Education
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Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning	Dean of The School of Government and Business Administration
International Affairs and Public Affairs.....	Dean of The School of Public and International Law Center
Law.....	Dean of The National Law Center
School of Medicine.....	1331 H Street, Washington, D.C. 20005
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Medical Alumni Association.....	1331 H Street, Washington, D.C. 20005
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THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXVII, Number 11, August 1968

Published by The University at Washington, D.C. 20006
MONTHLY: SEPTEMBER, DECEMBER, APRIL, AUGUST
(2 ISSUES IN NOVEMBER AND JANUARY; 3 ISSUES IN MARCH)

Second Class Postage Paid at Washington, D.C.

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE COLLEGE OF GENERAL
STUDIES 1968-69

WASHINGTON, D.C. 20006

1968

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30	31					

APRIL						
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MAY						
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JUNE						
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JULY						
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AUGUST						
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31						

SEPTEMBER						
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29	30					

OCTOBER						
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NOVEMBER						
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DECEMBER						
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COLLEGE OF GENERAL STUDIES CALENDAR 1968-69*

1968 FALL SEMESTER

- August 19-September 18 Off-campus registration† (days of registration and beginning classes will be announced in *Off-campus Schedule of Classes*)
Application for February graduation due as part of registration
- ‡September 17-18 Registration on campus‡ *Tuesday-Wednesday*
Application for February graduation due as a part of registration
- September 19 Classes begin on campus *Thursday*
- September 23 Classes begin off campus *Monday*
- September 28 CGS meeting of Staff of Instruction, 10:30 am, Lisner Auditorium *Saturday*
- November 11 Veterans Day (holiday) *Monday*
- November 27 Thanksgiving recess begins after last class *Wednesday*
- December 2 Classes resume *Monday*
- December 6-7 Master's Comprehensive Examinations *Friday-Saturday*
- December 21 Christmas recess begins after last class *Saturday*
- January 6 Classes resume *Monday*
- January 6 Master's theses of February candidates due in Dean's Office *Monday*
- January 14 Last day of campus fall-semester classes *Tuesday*
- January 20 Inauguration Day (holiday) *Monday*
- §January 24 Last day of off-campus fall-semester classes *Friday*

* Off-campus courses organized at any time.
† Application for graduation and for Master's Comprehensive Examinations is the student's responsibility and must be made when registering for last courses required for degree.
‡ Hours of registration will be announced in the *Campus Schedule of Classes*.
§ The final examination will be given at last class meeting.

4 COLLEGE OF GENERAL STUDIES

1969 SPRING SEMESTER

<i>January 22–February 1</i>	Off-campus registration* (days of registration and beginning classes will be announced in <i>Off-campus Schedule of Classes</i>) Application for June graduation due as part of registration
<i>†January 30–February 1</i>	Registration on campus* <i>Thursday–Saturday</i> Application for June graduation due as part of registration
<i>February 3</i>	Classes begin off campus and on campus <i>Monday</i>
<i>February 15</i>	CGS meeting of Staff of Instruction, 10:30 am, Lisner Auditorium <i>Saturday</i>
<i>February 21</i>	Holiday <i>Friday</i>
<i>February 22</i>	Winter Convocation (holiday) <i>Saturday</i>
<i>April 2</i>	Spring recess begins after last class <i>Wednesday</i>
<i>April 9</i>	Classes resume <i>Wednesday</i>
<i>May 5</i>	Master's theses of June candidates due in Dean's Office <i>Monday</i>
<i>May 20</i>	Last day of campus spring-semester classes <i>Tuesday</i>
<i>†May 29</i>	Last day of off-campus spring-semester classes <i>Thursday</i>
<i>May 30</i>	Memorial Day (holiday) <i>Friday</i>
<i>June 8</i>	Commencement <i>Sunday</i>

* Application for graduation and for Master's Comprehensive Examinations is the student's responsibility and must be made when registering for last courses required for degree.
† Hours of registration will be announced in the *Campus Schedule of Classes*.
‡ The final examination will be given at last class meeting.

THE COLLEGE OF GENERAL STUDIES

THE COLLEGE OF GENERAL STUDIES was established in 1950 as the off-campus college of the University, to extend the educational facilities of the University, introduce experimental programs of study for mature students, and provide educational services other than formal programs of study. The College works closely with education directors; school officials; personnel administrators in government, business, and industry; and others interested in developing in-service training. The College also conducts conferences, seminars, and non-credit courses.

ACADEMIC STANDARDS

The Staff of Instruction includes many members of the faculties of other colleges and schools of the University.

The academic standards of the University are maintained in off-campus credit courses.

The College is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools.

The College of General Studies is a member of the Association of University Evening Colleges and the National University Extension Association.

TYPES OF PROGRAMS

The College of General Studies administers the off-campus degree programs over which the Columbian College of Arts and Sciences Faculty, the School of Government and Business Administration, and the School of Public and International Affairs have academic jurisdiction.

The College also offers credit courses in liberal arts, education, and business administration for which there is sufficient demand and for which qualified instructors can be found, regardless of whether such courses are in the regular offerings of the University. Programs are offered to meet the in-service needs of special groups.

As a community service, a regular program of noncredit courses without entrance requirements is offered each semester by the College.

Any organization, group, installation, or agency interested in having the University organize and conduct a course or a comprehensive educational program should get in touch with the Director of Credit Programs of the College of General Studies. Telephone 676-7020. A representative will be sent, upon request, to discuss organizational plans.

Admission

ADMISSION AS A NONDEGREE STUDENT

THERE ARE NO PREREGISTRATION FORMALITIES for the following categories of nondegree students: those who wish to enroll in off-campus courses for self-improvement; those who plan to transfer their credits to other institutions; those who have not yet applied for degree candidacy.

Nondegree students must meet the prerequisites prescribed for specific courses and, if they have previously attended a college or university, be in good standing. The nondegree student enrolling in graduate courses must have a Bachelor's degree, or 90 semester hours of undergraduate work and the permission of the instructors in the courses.

ADMISSION AS A DEGREE STUDENT

For entrance requirements for Bachelor's candidacy, see pages 22-23; for Master's candidacy, see pages 29-30.

Application should be made only when the entrance requirements have been met and if there is a reasonable assurance that the student will be in the area long enough to complete degree requirements. Forms for application may be obtained from the College, a Field Representative, or the Installation Education Director. These should be filled out and sent to the Office of Admissions, George Washington University, Washington, D.C. 20006, together with the credentials required, and an application fee of \$25.

BACHELOR'S STUDY

The applicant must send the high school record form, available at the Office of Admissions, to his high school principal, with the request that he fill it out and return it directly to the Office of Admissions.

Eligibility for degree candidacy is dependent on

1. The adequacy of previous academic work as preparation for the course of study contemplated, including quantity and quality of work and the standing of the institution in which it was done
2. Results of specified tests, as prescribed in this catalogue or by the appropriate Committee on Admission and Advanced Standing
3. The aptitude of the student for the curriculum contemplated
4. The character of the student.

ADVANCED STANDING

THROUGH TRANSFER FROM OTHER COLLEGES AND UNIVERSITIES

Properly certified courses taken at accredited colleges or universities may be applied toward a degree, subject to the curriculum requirements of the degree program for which admission is sought. Although work of low passing grade (such as *D* or the equivalent) is not acceptable for transfer, a course in which a grade of *D* was received may be used to satisfy a curriculum requirement.

It may not, however, be counted toward the total number of semester hours required for the degree, and it should not be repeated.

Transfer students whose previous academic records raise doubts of their ability to complete degree requirements successfully must complete 15 hours of course work in this College with a quality-point index of 2.50 or higher to be considered for degree candidacy. Courses taken to qualify for candidacy must be distributed over two or more of the following areas: Humanities (literature, philosophy, foreign language), Social Science (anthropology, economics, geography, history, political science, sociology), and Natural Science and Mathematics. (Students who have not successfully completed an acceptable college course in English Composition must include English I or 1x and 2.) Applicants who have been suspended for academic reasons from this University or another institution must fulfill this same 15-hour requirement and also obtain written approval of a petition for admission to degree candidacy from the appropriate Committee on Admission and Advanced Standing.

The University reserves the right to refuse credit for transfer in whole or in part, or to allow it provisionally. Credit so given may be withdrawn for subsequent poor work.

It is the responsibility of the student to have an official transcript sent directly from each institution formerly attended to the Office of Admissions, George Washington University, Washington, D.C. 20006.

If the transcript from a higher institution includes the record of his secondary school work, it is not necessary for the applicant to have forwarded a separate record from the principal of the secondary school.

THROUGH SERVICE SCHOOLS, VALIDATING EXAMINATIONS, AND CORRESPONDENCE COURSES

In addition to credit allowed in transfer from other accredited colleges or universities, a maximum of 30 semester hours of advanced standing in this College may be obtained by any combination of the following methods.

Service Schools.—Except for those students enrolled as candidates for the Bachelor of Science in Geodetic and Cartographic Science or the Bachelor of Science in Oceanography degree, a maximum of 30 semester hours may be obtained on the basis of service schools satisfactorily completed, as evaluated in accordance with the "Guide to the Evaluation of Educational Experience in the Armed Forces." Ordinarily such subjects are counted as electives. No credit will be allowed for military experience as such.

Validating Examinations.—A maximum of 12 semester hours may be obtained by validating examinations. With the approval of the departmental adviser concerned, permission to take such examinations is granted those who are qualified by work experience and background. Validating examinations may be taken only once, and a grade of C or better is required for credit. The fee for each 3-hour course examination is \$88.

Correspondence Courses.—Except for those students enrolled as candidates for the Bachelor of Science in Geodetic and Cartographic Science or the Bachelor of Science in Oceanography degree, a maximum of 15 semester hours may be earned through the successful completion of correspondence courses of college level which are offered by the U.S. Armed Forces Institute or a regionally accredited college or university.

MASTER'S STUDY

Application for Master's candidacy *must* be made before or immediately after starting course work. No more than 6 semester hours of credit toward the degree will be granted for work taken in nondegree status (before application and while the application is being processed).

ADVANCED STANDING*

A maximum of 6 semester hours of advanced standing may be credited toward the degree by transfer of credit for approved graduate work taken at an accredited college or university.

Registration

OFF-CAMPUS REGISTRATION is conducted before or at the first class meeting of each course, at times and places stated in the *Off-campus Schedule of Classes*, available well in advance of each semester.

Registration in an off-campus course *constitutes admission to that course only*. It does not admit the student to campus courses or to degree candidacy. In the College of General Studies, only students admitted to degree candidacy may enroll as full-time students (for 12 semester hours or more). Those who have been graduated from high school recently and wish to be *full-time freshman* students at this University should apply for admission to the appropriate college or school on campus.

Auditing.—With the permission of the instructor, students may register as "Auditors." An auditor is not required to take active part in the exercises or to take examinations; he receives neither grades nor credit. Tuition is the same for the auditor as for the student registered for credit. With the approval of the Dean, a student may change from credit to audit status during the first third of the semester. A student who takes a course as an auditor may not repeat it later for credit.

Concurrent Registration.—A student registered as a degree candidate in any other college or school of the University may take credit courses in the College of General Studies *only by permission (granted prior to registration) of the dean* of the college or school concerned. A "College of General Studies Off-campus Concurrent Registration Permit" form must be obtained at the office of the appropriate college or school, signed by the dean of that college or school, and presented at the time of registration in the College of General Studies.

Service personnel enrolled full time for campus courses need the permission of the Dean of the College of General Studies to register concurrently for off-campus courses.

Any student taking course work in another college or school of the University or taking Consortium courses must have permission of his Dean.

* Not applicable to candidates for the degrees of Master of Science in Business Administration or Master of Science in International Affairs in the War Colleges' program.

NONCREDIT COURSES

Noncredit courses are open to anyone interested in enrolling. When a course is organized at the request of a particular agency or group, admission may be restricted to the students recommended by the sponsoring organization.

Fees and Financial Regulations

ALL FEES should be paid by check or money order, made payable to George Washington University.

The following fees were adopted for the academic year 1968-69. (See page 10 for projected tuition increases for 1969-72.)

Tuition	
On campus:	
Full-time undergraduate program (12 to 18 hours), each semester.....	\$850.00
Part-time undergraduate program or hours in excess of 18, for each semester hour	60.00
Graduate study, for each semester hour.....	60.00
Off campus:*	
For each semester hour.....	44.00
War Colleges' and ICAF programs, for each semester hour.....	51.00
Thesis:†	
War Colleges' and ICAF programs, for each semester hour.....	51.00
Off-campus programs other than War Colleges' and ICAF, for each semester hour	60.00

Special Fees	
Application fee (degree candidate), nonrefundable.....	25.00
Graduation fee, due and payable at the time of registration for the last semester or summer session.....	25.00
Continuous Registration fee, off-campus degree candidates, to maintain "continuous registration" during any semester of absence from the University‡	44.00
Continuous Registration fee, on-campus degree candidates, to maintain "continuous registration" during any semester of absence from the University or after completion of tuition requirements‡	60.00
Continuous Registration fee, War Colleges' or ICAF degree candidates, to maintain "continuous registration" during any semester of absence from the University‡	51.00
Fee for binding two copies of the Master's thesis (other than ICAF programs)	10.00

* Except in War Colleges' and ICAF programs.
 † Payment of tuition for a Master's thesis entitles the candidate, during the period of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, additional time may be granted in accordance with the regulations of the school in which the student is registered. (See pages 17-18 for regulations governing Military Leave.)
 ‡ Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither tuition fee nor residence requirements for the degree. This fee does not apply to students granted Military Leave (see pages 17-18).

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Fee for binding two copies of the Master's thesis (ICAF programs).....	7.00
Withdrawal fee, charged in certain cases.....	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
Fee for each examination to waive a curriculum requirement.....	5.00
Validating Examination fee.....	88.00
Transcript fee, charged for each transcript of record.....	1.00

PROJECTED TUITION INCREASES 1969-72

Projected increases for the academic years 1969-70, 1970-71, and 1971-72 have been estimated as follows:

On campus

Increase by year (full-time undergraduate students):

1969-70	\$100.00
1970-71	100.00
1971-72	100.00

Increase by semester hour (graduate and part-time undergraduate students):

1969-70	4.00
1970-71	4.00
1971-72	4.00

Off campus

Increase by semester hour (except War Colleges' and ICAF programs):

Course Work Other than Thesis

1969-70	3.00
1970-71	3.00
1971-72	3.00

Thesis

1969-70	4.00
1970-71	4.00
1971-72	4.00

Increase by semester hour (War Colleges' and ICAF programs including thesis):

1969-70	3.00
1970-71	4.00
1971-72	4.00

It is not possible to project future economic data with certainty. Barring a severe change in the national economy, however, the above listed tuition schedule will be followed.

PAYMENT OF FEES

OFF-CAMPUS COURSES

Fees for each semester are due and payable in full at the time of each registration; however, a student registering for a fifteen-week credit course may sign a contract at each registration to make payments in three equal installments—one-third at the time of registration, one-third 30 days after the course begins.

and one-third 60 days after the course begins. Payments are due at the stipulated times even if the student has not received a payment-due reminder notice from the University.

Tuition and fees for credit courses lasting less than fifteen weeks, and for all noncredit courses, are payable in full at registration.

Financial Suspension.—A student who fails to meet a tuition payment when due is automatically suspended and may not attend classes until he has been officially reinstated by the Student Accounts Office and has paid all accrued fees and a \$10 reinstatement fee.

CAMPUS COURSES

All fees are payable at the Office of the Cashier. Tuition and fees for each semester are due and payable in full at the time of each registration.

A student registered for 6 semester hours or more may sign a contract with the Student Accounts Office at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 6, 1968 (for the fall semester) and March 19, 1969 (for the spring semester). A service fee of \$5 will be charged for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance, of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 reinstatement fee and have been officially reinstated by the Student Accounts Office.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Student Accounts Office.

REFUND OF FEES

OFF-CAMPUS COURSES

No fees will be refunded (except in the event of course cancellations) for any course of less than eight weeks' duration, or any noncredit course.

Fifteen-week Credit Course.*—In no case will the first third of the tuition cost be refunded unless the course is cancelled. Two-thirds of the total charge will be waived or refunded if the course is dropped within the first 30 days. One-third of the total cost will be waived or refunded if the course is dropped within the second 30 days. No refund will be allowed on withdrawal subsequent to the second 30-day period. In no case will tuition be reduced or refunded because of absence from classes.

This regulation does not apply if a student withdraws from one course to enter another.

*If a student is transferred from the area under military orders, he will be entitled to a credit of at least one-third of his tuition for that semester. In case the student has paid more than one-third of his tuition, refund of tuition over the one-third credit will be governed by the regulations set forth for *Fifteen-week Credit Course*.

CAMPUS COURSES

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice.

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. *Complete withdrawal from the University:*

FALL SEMESTER

Withdrawal dated on or before September 27, 1968.....	90 per cent
Withdrawal dated September 30 to October 11, 1968.....	75 per cent
Withdrawal dated October 14 to October 25, 1968.....	50 per cent
Withdrawal dated after October 25, 1968.....	none

SPRING SEMESTER

Withdrawal dated on or before February 7, 1969.....	90 per cent
Withdrawal dated February 10 to February 21, 1969.....	75 per cent
Withdrawal dated February 24 to March 7, 1969.....	50 per cent
Withdrawal dated after March 7, 1969.....	none

2. For a change in status from full-time to part-time student or for partial withdrawal by a part-time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.
3. A student enrolled in a full-time program who drops or adds a course and continues to be in a full-time program will have no financial adjustments of tuition made other than those involving course fees.
4. A student who is granted military leave before completing a semester is given credit for all tuition paid for that semester, for use upon his return to the University. No tuition will be refunded to a student granted military leave (see "Military Leave," pages 17-18).

In no case will tuition be reduced or refunded because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Regulations

CAMPUS STUDY

OFF-CAMPUS DEGREE CANDIDATES may register for campus courses approved for their programs, if these courses are not conveniently available at off-campus centers. Permission for on-campus registration must be obtained from the Dean of the College of General Studies at least two weeks prior to the date of campus registration so that an IBM registration packet may be prepared for him.

Service personnel who wish to study full time at the University may register for campus courses through the College of General Studies if they meet the following requirements. Permission of the Dean is required for concurrent registration in off-campus courses.

1. The applicant must be in attendance under official orders which give him a specified time in which to finish his degree requirements.
2. He must be in a position to enroll for full-time study.

ACADEMIC WORK LOAD

Only students admitted to degree candidacy may enroll as full-time students, i.e., for 12 or more hours in a semester. Students taking course work to qualify for degree candidacy in this College may take not more than 10 hours in a semester.

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student on probation normally may take not more than 3 semester hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

Any student taking course work in this College (whether nondegree or degree candidate) must have the permission of the Dean for concurrent registration in another college or university.

ATTENDANCE

The student is held responsible for all of the work of the course, and all absences must be excused by the instructor before provision is made for the student to make up work missed.

In a fifteen-week course in which classes meet once a week, *one* unexcused absence is permitted. In a fifteen-week course in which classes meet twice a week, *two* unexcused absences are permitted. In an eight-week course meeting twice a week, *one* unexcused absence is permitted. Minimum absences per se will not be used as the sole reason for failing a course. It is the University policy that students attend courses regularly.

Excuses must be made by written application to the instructor, or by verbal permission later confirmed in writing.

EXAMINATION FOR WAIVING CURRICULUM REQUIREMENTS

During the first full semester of degree candidacy, a student wishing to omit a required course may, with the permission of the Dean, take a waiver examination, the passing of which relieves him of the curriculum requirement and qualifies him for registration in an advanced course. *Passing of the waiver examination does not entitle the student to credit toward a degree.* The fee for each 3-hour course examination is \$5.

SCHOLARSHIP**GRADES**

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors or the administrative staff of the College.

Undergraduate Grading System.—*A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR* indicates credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be assigned. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the work of the course. An "incomplete" cannot be made up after the lapse of one calendar year, except by written permission of the Dean. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by repeating the course.

A student may not repeat, for grade, a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect by the appropriate departmental chairman must be submitted to the Dean.

Graduate Grading System.—Grades for graduate work are *A*, outstanding; *B*, high quality; *C*, minimum quality; *F*, failure; and *I*, incomplete; *CR*, credit.

An average of *B* or better is required for the Master's degree. The grade of *C* is not considered as failing but must be counter-balanced by a grade of *A* in a graduate course of equal status.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the appropriate dean. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by repeating the course.

QUALITY-POINT INDEX

Quality points are computed from grades as follows:

For each semester hour of the letter grade—*A*, 4 points; *B*, 3 points; *C*, 2 points; *D*, 1 point; *F*, no points.

Scholarship is computed in terms of the quality-point index. This is done by dividing the total number of quality points by the total number of semester hours for which the student has registered. Example: if a student received an *A* in one three-credit course, and a *B* in another three-credit course, he would compute his quality-point index this way:

$$A = 4 \times 3 \text{ (semester hours)} = 12$$

$$B = 3 \times 3 \text{ (semester hours)} = 9$$

6

$$21 \div 6 = 3.5 \text{ quality-point index}$$

Courses marked *W*, *I*, or *CR* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically

changed to an *F*. Grades in courses taken at other institutions are not considered in computing the quality-point index.

WARNINGS

At stated intervals during the academic year students who are doing work of *D* grade or lower in courses with departmental numbers below 100 receive "warnings." A "warning" constitutes notice to the student that he must consult his instructor and his adviser at the earliest opportunity. "Warning periods" are established during the seventh and eighth weeks of fifteen-week courses, and during the third and fourth weeks of eight-week courses.

PROBATION

Undergraduate Probation.—A student must maintain a quality-point index of at least 2.00 or be placed on probation.

A student who has attempted 12 or more semester hours of work and whose cumulative quality-point index is between 1.50 and 2.00 is placed on probation for the period in which he attempts 12 additional semester hours of work. If his quality-point index is still below 2.00 at the end of his probationary period, he is suspended. The Committee on Scholarship reserves the right to extend the period of probation even if the student has earned an average of above 2.00. A student placed on probation for a third period, whether successive or after an interval, is suspended.

Graduate Probation.—A student who has attempted 6 or more semester hours and whose quality-point index is between 2.50 and 3.00 is placed on probation for the period in which he attempts 12 additional semester hours of work. If his quality-point index is still below 3.00 at the end of his probationary period, he is suspended. If, after probation is removed, a student's quality-point index again falls below 3.00, he is suspended.

SUSPENSION*

Undergraduate Suspension.—A student who has attempted 12 or more semester hours of work and whose cumulative quality-point index is below 1.50 is subject to suspension; however, a student who has a quality-point index between 1.40 and 1.50 is considered by the Committee on Scholarship, which may retain him on probation or suspend him. A student who has attempted 6 or more semester hours of work and has a quality-point index of 1.00 or below is suspended.

A student who is subject to probation for the third time, whether successive or after an interval, is suspended.

A student suspended for poor scholarship cannot register for courses even as an auditor. He may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Scholarship that he is better qualified to pursue college work. A student suspended twice for poor scholarship will not be readmitted.

Graduate Suspension.—A student who has attempted 6 or more semester hours of work and whose cumulative quality-point index is below 2.50 is suspended.

* For Financial Suspension see "Payment of Fees," pages 10-11.

READMISSION*

A student who withdraws, is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return. Forms for readmission may be obtained from the Office of Admissions of the University. Complete and official transcripts from each institution the student has attended since making his previous application must be sent to the Office of Admissions before his application for readmission can be evaluated.

CHANGES IN PROGRAM OF STUDIES**DROPPING A COURSE OFF CAMPUS**

A course may be dropped without academic penalty during the first third of the semester. Withdrawing from a course without academic penalty after the first third of the semester requires approval of a written request, which should be addressed to the Dean of the College of General Studies.

Procedure for dropping courses.—An Off-campus drop slip (obtainable from the instructor, installation education director, or the College of General Studies) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

Notifying an instructor of the intention to drop a course does not constitute an official withdrawal. Failure to follow the proper procedure will result in an automatic grade of *F* and, regardless of the time of discontinuance, will not relieve the student of financial responsibility for the entire course. (See "Refund of Fees" pages 11-12.)

DROPPING A CAMPUS COURSE

A Campus drop slip (available at the Office of the Dean) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

Withdrawal between the last working day† in October and the end of the fall semester and between the last working day† in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not constitute an official withdrawal.

TRANSFER WITHIN THE UNIVERSITY

Transfer of residence to the College of General Studies, as a degree candidate, from another college, school, or division of the University may be made only with the approval of the deans concerned. Application for transfer should be made on the transfer form, which is available at the Office of Admissions. An insert form, obtainable at the College of General Studies, must also be com-

* When there are curriculum changes in graduate programs, the readmitted student may be required to take additional course work in preparation for the Master's Comprehensive Examinations.
† The University work week is Monday through Friday, inclusive.

pleted. Upon transfer the student should consult the Dean and understand clearly the requirements he must fulfill.

A maximum of 90 semester hours is transferrable toward a Bachelor's degree, 18 toward a Master's degree. Students transferring within the University are advised to note the residence requirements of the degree sought.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of courses in the University, or upon the granting of advanced standing in accordance with the regulations of the College.

For transfer from credit to audit status, see page 8.

BALANCE SHEET

On request, the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet will be issued only in the event the student changes major or degree objectives.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration (including the thesis) must maintain continuous registration by paying the "continuous registration" fee (see page 9). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," page 16). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission. The maintaining of continuous registration normally is limited to a period of one year.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses, or are expecting to graduate at the end of the Summer Sessions.

MILITARY LEAVE

A student called to active duty may be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University well in advance of the semester in which he expects to return. If a student is granted military leave before he completes a semester for which he has paid all or part of his tuition, this payment will be credited to his account for use upon his return to the University. In no case will tuition be refunded to a student granted military leave.

A degree candidate who is a member of the Armed Forces and is transferred to the Far East for service connected with the Vietnam conflict will be granted military leave for the period of that service, upon presentation to the Dean of a copy of his orders and a petition for such leave.

GRADUATION REQUIREMENTS

To be recommended for graduation a student must have met the admission requirements of the College; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree. For the Industrial College of the Armed Forces or War Colleges programs, which are on a different academic year schedule, registration in the last semester of the academic year of the program fulfills this requirement.

Application for Graduation.—An "Application for Graduation" form must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior or final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

Scholarship.—Candidates for the Bachelor's degrees must have a general quality-point index of 2.00 and a quality-point index of 2.50 in the concentration. An average of *B* or better is required for the Master's degree (see page 14).

Curriculum.—See the requirements for the degree concerned.

Residence.—A student is "in residence" only when registered for course work after making application for admission to degree candidacy or for the 15 semester hours undertaken to qualify for degree candidacy (see the specific residence requirements for the degree concerned).

With the permission of the Dean, a student may be granted leave of absence; such student should, however, remain technically in residence by paying the continuous registration fee for each semester he is absent. For the purpose of this regulation, the summer session is disregarded.

By special arrangement, service personnel who receive military transfers when they are within 6 hours of a degree may be permitted to complete their work elsewhere, transfer these credits to the College of General Studies, and receive a degree from this University. This procedure does not apply to Master's candidates who have been granted 6 hours of transferred credit or have not completed the required courses.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis.—A thesis, submitted in partial satisfaction of requirements for the Master's degree, must be submitted in its final form to the Dean no later than the date specified in the calendar. Two complete copies of each thesis are required. It is the responsibility of the candidate for a graduate degree to obtain from the College of General Studies a printed copy of the regulations governing the styling and reproduction of the thesis. These regulations are rigidly enforced. (See pages 30–31.)

Accepted theses, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

HONORS

Dean's List.—To be eligible for inclusion on the Dean's List, a student must be a candidate for an undergraduate degree in the College of General Studies. Course work taken while the application for admission is being processed will be computed in determining eligibility for the Dean's List. A full-time degree candidate must have a minimum quality-point index of 3.50 for the semester concerned; a part-time degree candidate must have a quality-point index of 3.50 on the last 12 semester hours of work and must have maintained continuous registration for at least one three-hour course during the period concerned. Eligibility for inclusion again will be determined on the basis of the subsequent 12 semester hours of work.

With distinction.—The undergraduate degrees may be conferred "with distinction," at the discretion of the Dean's Council of the College and the Committee on Scholarship, if a student attains a quality-point index of 3.50 or higher on all work taken at this University. To be eligible for this honor a student must have completed at this institution at least one-half of the course work required for the degree.

Special honors.—Special honors may be awarded to any member of the graduating class for outstanding achievement in the student's concentration of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or concentration no later than the beginning of the senior year.
2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for honors a student must have completed at this institution at least one-half of the academic course work required for the degree.

DISHONESTY

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be cancelled. If such falsification is discovered after the student has established an academic record at the University, he may be subject to dismissal from the University. Such a student will be ineligible except by special action of the Dean's Council) for subsequent registration in any unit of the University.

Academic dishonesty on the part of any student will result in a disciplinary grade of *F* for the course involved and also may, upon the recommendation of the Dean's Council, result in his suspension from the University for a stated period, at the end of which time he may petition for readmission. The disciplinary grade of "Failure—Academic Dishonesty" will be recorded for the

course involved, and this grade will be employed in the computation of the quality-point index. A student so suspended shall be withdrawn from all other courses except those in which all work has been completed.

THE LIBRARY

A student registered in the College of General Studies is entitled to the reference use of the University Library. Its stacks are open, and all students are welcome to browse at their leisure. A library card is issued to each student.

The loan period for most books available for outside circulation is 30 days, nonrenewable except for graduate students. A fine of 25 cents is charged for each day a book is overdue. Any book which circulates is subject to recall by the Library at any time if needed for reserve or other use. Reserve books must be used in the reserve reading room when the Library is open, except that they may be withdrawn for overnight use beginning at 8:30 p.m. A fine of 50 cents is charged for each hour or fraction thereof that a reserve book is overdue. Grades of a student are withheld until his library record is clear.

The hours of the University Library are: Monday through Friday, 8:30 a.m. to 10 p.m.; Saturday, 9 a.m. to 5 p.m.; Sunday, 2 to 10 p.m.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

UNIVERSITY POLICY ON THE RELEASE OF STUDENT INFORMATION

In general, the policy of the University is one of attempting to keep the student's record confidential and out of the hands of those who would use it for other than legitimate reasons. At the same time, the policy must be flexible enough not to hinder the student, the University, or the community in their legitimate endeavors.

No information concerning a student will be released, except as noted below, unless required by court order or subpoena, or requested in writing by the student:

1. Information which is of public record, such as whether or not the student is currently enrolled; dates of attendance; whether or not he received a degree; current address and telephone number; the school or college in which he is enrolled.

2. The issuance of formal transcripts of record to recognized institutions of higher learning; the certification of academic achievement to the various recognized professional associations (law, medicine, engineering, education, etc.); and the inspection of records, under appropriate supervision, by properly validated representatives of government investigative agencies.

UNIVERSITY POLICY ON SELECTIVE SERVICE INFORMATION

The University notifies draft boards of a student's academic status only when the student requests or authorizes, in writing, that the draft board be notified. A Selective Service Information Card is put into the registration packet of each male student registered on campus, exclusive of those in the National Law Center and the School of Medicine. This card contains the following statement:

By my signature below, I hereby authorize the University to notify my draft board of my academic status in the University, or of any changes in academic status that occur during this semester.

If the student signs the card, the University then automatically notifies the draft board. If the student does not sign the card, no notification is sent. National Law Center students and students in the School of Medicine should check with the appropriate dean's office for details of the policy in their school.

Student Services

HONOR SOCIETY

Alpha Sigma Lambda.—A national honor society for part-time evening college and off-campus undergraduate degree students, the purpose of which is to recognize and to encourage scholarship and leadership among undergraduate degree candidates. Membership is limited to students who have been enrolled for four semesters or terms in the College of General Studies and have completed 30 semester hours of work toward a degree with a 3.50 average. The Alpha Chapter was established at George Washington University in 1965.

VETERANS EDUCATION

The Office of the Registrar, Luther Rice Hall, 2121 Eye Street, N.W., assists students entitled to educational benefits as veterans or war orphans with any problems which may arise concerning their benefits. This Office also processes certifications of enrollment and attendance to the Veterans Administration so that monthly allowances will be paid.

When feasible, students entitled to benefits as veterans or war orphans should consult the Office of the Registrar prior to submitting application to the Veterans Administration. All such students should obtain the instruction sheet issued by the Office of the Registrar, which sets forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration, and which includes other information of general interest.

The Veterans Administration is at 2033 M Street, N.W., Washington, D.C. 20421.

STUDENT AND ALUMNI CAREER SERVICES OFFICE

The Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., provides assistance to degree-seeking students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the

on-campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which private companies, government agencies, service organizations, public school systems, and universities participate. Prospective teachers may establish permanent credentials files in the Student and Alumni Career Services Office. This service includes files for alumni seeking college and university faculty and administrative positions. The Office also provides individual counseling for students and alumni wishing career guidance.

The Office is open from 9 a.m. to 5 p.m., Monday through Friday.

COUNSELING

Students in the College of General Studies may obtain counseling and assistance in program planning in the offices of the College or from Field Representatives at the installations and agencies at which courses are held. Appointments may be made by calling the College of General Studies: Telephone 676-7000; or through the Education Director at individual installations. University counselors are also available at all installations and agencies during announced registration periods, and at scheduled times each month.

The Bachelor's Degrees

THE FACULTY of Columbian College of Arts and Sciences has academic jurisdiction over the degrees of Bachelor of Science in General Studies with areas of concentration in history, mathematics, political science, and psychology; Bachelor of Science in Geodetic and Cartographic Science; and Bachelor of Science in Oceanography. The Faculty of the School of Government and Business Administration has academic jurisdiction over the degree of Bachelor of Science in General Studies with areas of concentration in accounting and business administration. These off-campus programs are administered by the College of General Studies.

REQUIREMENTS FOR DEGREE CANDIDACY

Secondary school graduates applying for Bachelor's candidacy must present the combined evidence of (1) an acceptable certificate of graduation from an accredited secondary school, showing a minimum of fifteen "units"* in a college preparatory or academic curriculum; (2) the principal's statement that the applicant is adequately prepared to undertake college work with reasonable prospect of success; (3) College Entrance Examination Board scores on the Scholastic Aptitude Test and the English Composition Achievement Test (for students out of high school several years, other appropriate tests may be prescribed).

Mature students who do not meet these requirements may be considered for degree candidacy after the satisfactory completion of at least 15 semester hours of course work with a grade average of C or better. Courses taken to qualify for candidacy must include English 1 or 1x and 2, *English Composition*, and 9 semester hours of course work in at least two of the following areas: Human-

* A unit represents a year's study in a secondary school subject, including in the aggregate no less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

ties (literature, philosophy, foreign languages), Social Science (anthropology, economics, geography, history, political science, sociology), and Natural Science and Mathematical Sciences.

The selection of qualifying courses should be made in conference with the Field Representative, and a conference concerning plans for study is required of each applicant for admission to candidacy.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

The last 30 semester hours, including at least 12 hours in the area of concentration, must be completed in residence in the College of General Studies, unless special permission is granted by the Dean to take work elsewhere. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work and the 15 hours taken in order to be considered for degree candidacy may be counted in residence, but in no case may the period of residence aggregate less than 30 weeks. For regulations governing military students who are transferred when they are within 6 semester hours of their degrees, see page 18.

Transfers.—Transfer students from other colleges or universities must complete satisfactorily at least 12 semester hours of the required work in their area of concentration in residence in the College of General Studies.

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 14–15. For regulations concerning probation, suspension, and readmission, see pages 15–16.

To remain in good standing, a student must maintain a general quality-point index of 2.00 and a quality-point index of at least 2.50 in his area of concentration.

BACHELOR OF SCIENCE IN GENERAL STUDIES CURRICULUM

Faculty Adviser: Paul Vernon Bissell, Assistant Dean of the College of General Studies. F-30; Telephone: 676-7014

The Bachelor of Science in General Studies curriculum aims to provide the adult part-time student with the opportunity to obtain a broad education. For that reason the course work required in the first and second years is distributed among Communications (written and oral), the Humanities, Natural Science and Mathematical Sciences, and the Social Sciences. In choosing the third- and fourth-year course work required in departments related to their concentration, students should obtain counseling through the Field Representatives of the College.

Students planning to work toward Master's degrees are advised to plan their Bachelor's programs so that they will meet the prerequisite requirements of the school or college of their choice. Students planning to enter graduate programs which require reading knowledge of a foreign language are advised to include two years of one foreign language in their Bachelor's program.

24 COLLEGE OF GENERAL STUDIES

Entrance and advanced standing requirements are stated on pages 6-7, 22-23; residence and scholarship requirements on page 23.

FIRST AND SECOND YEARS

Communications

English 1 or 1x, 2.....	Semester Hours 6
English 11; Speech 111, 121.....	6

Humanities

Humanities 1-2, 3-4

or

Twelve semester hours selected from the following: Art 31-32, 71-72; English 41-42, 51-52, 71-72, 91-92; Foreign Language (2 years of one language); Philosophy 51-52; Religion 9, 10, 59-60; Slavic 91-92, 93-94..... 12

Natural Science and Mathematical Sciences

Biological Sciences 1-2; Chemistry 3-4; Geology 1-2, 3, 4; Physics 1, 2, 9-10 6-8
Six semester hours selected from the following: Mathematics 3, 6, 9, 10, 15, 16; Statistics 51, 52, 101-2 (students with a concentration in Accounting or Business Administration may elect Business Administration 118 and 119 or 120) 6

Social Sciences

One full-year course in any two departments selected from the following: Anthropology 1-2; Economics 1-2; Geography 51 and 52; History 39-40, 71-72; Political Science 5-6; Psychology 1 and 8, 1 and 22, 1 and 29; Sociology 1-2 12

Elective (depending on science option)..... 10-12

60

THIRD AND FOURTH YEARS

Concentrations are offered in Accounting, Business Administration, History, Mathematics, Political Science, and Psychology.

Concentration Requirements (to be selected in consultation with the Field Representative or the faculty adviser):

	Semester Hours
100-level courses in the department of the selected area of concentration.....	24*
100-level courses in two or more related departments.....	18*
Elective	18
Total	120

* Students selecting psychology as an area of concentration are required to take 18 semester hours of 100-level Psychology courses and 24 semester hours of 100-level courses in two or more related departments.

BACHELOR OF SCIENCE IN GEODETIC AND CARTOGRAPHIC SCIENCE

Only a portion of the course work in this four-year curriculum is offered on campus. The Geodetic and Cartographic Science and Oceanography courses are given at the Army Map Service, Environmental Science Services Administration, and the Naval Oceanographic Office, which have the necessary laboratory facilities. Since these installations are some distance from the campus, students should plan to provide their own transportation.

Entrance requirements are stated on pages 6-7, 22-23; residence requirements are stated on page 23.

ADVANCED STANDING

Twelve semester hours of credit may be granted upon the successful completion of validating examinations. *Note that no credit will be given for courses taken in correspondence schools or service schools.*

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 14-15. For regulations regarding probation, suspension, and readmission see pages 15-16.

To remain in good standing a student must maintain a general quality-point index of 2.00 and a quality-point index of at least 2.50 in courses from one of the following areas of concentration: *Cartography*—Geodetic and Cartographic Science 13, 107, 108, 110, 111, 112; *Geodesy*—Geodetic and Cartographic Science 13, 105, 110, 155, 156, 160.

CURRICULUM

Faculty Adviser: Hyman Orlin, Professorial Lecturer in Mathematics. Telephone: 496-8720.

	<i>Required—First Year</i>	<i>Semester Hours</i>
Engl 1, 2:	English Composition	6
*Geog 51:	Introduction to Geography.....	3
*Geog 52:	World Regions	3
Math 21:	Calculus I	3
Math 22:	Calculus II	3
Phys 1:	General Physics	4
Phys 30:	Introductory Modern Physics.....	4
Social Sciences:	To be selected from the following.....	6
Anth 1-2:	Introductory Anthropology	
Econ 1-2:	Principles of Economics	
Hist 39-40:	European Civilization in Its World Context	
P Sc 5-6:	Introduction to Political Science	
Soc 1-2:	Introductory Sociology	
	Total.....	32

* Required for Cartography option; an elective may be substituted for other options.

		Semester Hours
<i>Required—Second Year</i>		
Chem 11-12:	General Chemistry	8
Engl 51-52:	Introduction to English Literature, or	6
Engl 71-72:	Introduction to American Literature.....	6
G&CS 1-2:	Introduction to Cartography.....	3
Geol 1 or 3:	Introductory Geology	3
Math 23:	Calculus III	3
Math 24:	Calculus IV	3
Stat 107:	Statistics for Engineers.....	3
Total.....		32

		Semester Hours
<i>Required—Third Year</i>		
G&CS 12:	Plane Surveying	3
G&CS 13:	Geodetic Surveying	3
G&CS 105:	Elementary Geophysics	3
G&CS 107:	Geomorphology	3
G&CS 108:	Climatology	3
G&CS 110:	Map Projections	3
Math 111:	Mathematics for Engineers and Physicists I.....	3
Math 112:	Mathematics for Engineers and Physicists II.....	6
Ocea 101-2:	Elementary Oceanography	3
Total.....		30

Group Options

Two areas of specialization are open to students in this program; students select one at the beginning of the fourth year.

		Semester Hours
<i>Required—Fourth Year</i>		
GROUP I: CARTOGRAPHY		
G&CS 17:	Elementary Photogrammetry	3
G&CS 18:	Intermediate Photogrammetry	3
G&CS 111:	Cartographic Techniques	3
G&CS 112:	Advanced Cartography	14
Elective:	Selected from the following in consultation with the adviser	26
Total.....		26

GROUP II: GEODESY

G&CS 17:	Elementary Photogrammetry	3
G&CS 18:	Intermediate Photogrammetry	3
G&CS 155:	Elementary Geodesy	3
G&CS 156:	Geodetic Astronomy	11
G&CS 160:	Mathematics of Adjustments and Least Squares.....	11
Elective:	Selected from the following in consultation with the adviser	26
Total.....		26

Electives*

Recommended electives may be selected from the following:

- G&CS 106: Interpretation Theory—Geophysics
- G&CS 117: Advanced Photogrammetry
- G&CS 161: Adjustments in Geodesy and Photogrammetry
- Geol 141: Introductory Geochemistry
- Math 124: Introduction to Matrix Theory
- Math 134: Introduction to Boundary Value Problems
- Ocea 111: Ocean Waves and Tides
- Phys 161: Mechanics I
- Phys 162: Mechanics II
- Phys 163: Optics

BACHELOR OF SCIENCE IN OCEANOGRAPHY

Only a portion of the course work in this four-year curriculum is offered on campus. The Geodetic and Cartographic Science and Oceanography courses are given at the Army Map Service, Environmental Science Services Administration, and the Naval Oceanographic Office, which have the necessary laboratory facilities. Since these installations are some distance from the campus, students should plan to provide their own transportation.

Entrance requirements are stated on pages 6-7, 22-23; residence requirements are stated on page 23.

ADVANCED STANDING

Twelve semester hours of credit may be granted upon the successful completion of validating examinations. *Note that no credit will be given for courses taken in correspondence schools or service schools.*

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 14-15. For regulations regarding probation, suspension, and readmission, see pages 15-16.

To remain in good standing a student must maintain a general quality-point index of 2.00 and a quality-point index of at least 2.50 in required area courses—Geodetic and Cartographic Science 105; Geology 125; and Oceanography 101-2, 110, 112.

CURRICULUM

Faculty Adviser: Hyman Orlin, Professorial Lecturer in Mathematics. Telephone: 496-8720.

Required—First Year

	Semester Hours
Engl 1, 2: English Composition	6
Math 21: Calculus I	1

*In addition to the recommended electives, students should include one of the following courses: Art 31-32, 71-72; Music 3-4; Philosophy 51-52; Religion 9, 10, 21, 59-60.

	Semester Hours
Math 22: Calculus II	3
Phys 1: General Physics	4
Phys 30: Introductory Modern Physics.....	4
Social Sciences: To be selected from the following.....	6
Anth 1-2: Introductory Anthropology	
Econ 1-2: Principles of Economics	
Hist 39-40: European Civilization in Its World Context	
P Sc 5-6: Introduction to Political Science	
Soc 1-2: Introductory Sociology	
Elective: To be selected from the following.....	
Art 31-32: Survey of Western Art	
Art 71-72: Introduction to the Arts in America	
Mus 3: Introduction to Music	
Mus 4: Survey of Music Literature	
Phil 51-52: Introduction to Philosophy	
Rel 9: The Old Testament	
Rel 10: The New Testament	
Rel 21: Introduction to Religious Thought	
Rel 59-60: History of Religions	
Total.....	32

Required—Second Year

	Semester Hours
Chem 11-12: General Chemistry	8
Engl 51-52: Introduction to English Literature, or	6
Engl 71-72: Introduction to American Literature.....	6
G&CS 1-2: Introduction to Cartography.....	3
Geol 1 or 3: Introductory Geology	3
Geol 2 or 4: Introductory Geology	3
Math 23: Calculus III	3
Math 24: Calculus IV	3
Total.....	32

Required—Third Year

	Semester Hours
G&CS 12: Plane Surveying	3
G&CS 105: Elementary Geophysics	3
G&CS 107: Geomorphology	3
G&CS 108: Climatology	3
Math 111: Mathematics for Engineers and Physicists I.....	3
Math 112: Mathematics for Engineers and Physicists II.....	6
Ocea 101-2: Elementary Oceanography	3
Stat 107: Statistics for Engineers.....	3
Elective:	3
Total.....	30

Required—Fourth Year

	Semester Hours
Geol 125: Marine Geology	3
Ocea 110: Ocean Dynamics	3
Ocea 112: Biological Oceanography	3
Ocea 113: Marine Seismology	3

*Elective: May be selected from the following.....	14
G&CS 106: Interpretation Theory—Geophysics	
Geol 141: Introductory Geochemistry	
Math 124: Introduction to Matrix Theory	
Math 134: Introduction to Boundary Value Problems	
Ocea 111: Ocean Waves and Tides	
Phys 161: Mechanics I	
Phys 162: Mechanics II	
Phys 163: Optics	
Total.....	26

The Master's Degrees

THE DEGREE of Master of Science in Administration has replaced all of the Master's degrees formerly offered off campus, except those offered in the Military Cooperative Program.

Curricula open to qualified applicants lead to the degree of Master of Science in Administration in twelve areas of concentration, see pages 31–38.

Programs open to qualified applicants in the Military Cooperative Program lead to the degrees of Master of Science in Business Administration and Master of Science in International Affairs, see page 38.

Candidates receive the degrees of Master of Science in Administration and Master of Science in Business Administration from the School of Government and Business Administration. Candidates receive the degree of Master of Science in International Affairs from the School of Public and International Affairs.

These off-campus programs are administered by the College of General Studies. Master's degree candidates must take the Master's Comprehensive Examinations required of campus students†. Any substitution of courses requires the approval from the appropriate faculty adviser.

REQUIREMENTS FOR ADMISSION TO MASTER'S CANDIDACY

Application for Master's candidacy *must* be made before or immediately after starting course work. No more than 6 semester hours of credit toward the degree will be granted for work taken in nondegree status (before application and while the application is being processed).

The general requirement for Master's candidacy is a Bachelor's degree from a regionally accredited college or university (this general requirement, without further qualification, satisfies the admission requirements to Master's candidacy in the War Colleges), with an over-all quality-point index of 3.00 (a *B* average), adequate undergraduate preparation for the chosen graduate field, and satisfactory performance on the Admission Test for Graduate Study in Business‡. Students with below *B* undergraduate averages may qualify by their scores on the Admission Test for Graduate Study in Business. Students who

* Courses in Chemistry, Geology, and Physics with the consent of the adviser.
 † The curriculum of Master of Science in International Affairs offered at the War Colleges is not offered on campus.
 ‡ This is a test of general aptitude and does not presume an undergraduate major in Business Administration.

lack the necessary undergraduate background for the chosen graduate field may qualify by earning a *B* average in prescribed undergraduate courses.

The Admission Test for Graduate Study in Business must be taken prior to application for degree candidacy or during the semester in which application is made. For information concerning the date and place for taking the test, contact the Educational Testing Service, Box 955, Princeton, N.J. 08540.

ADVANCED STANDING*

A maximum of 6 semester hours of advanced standing may be credited toward the degree by transfer of credit for approved graduate work taken at an accredited college or university.

Students who are not certain that they will be in this area long enough to complete the degree requirements should be aware that most institutions will accept only 6 hours of transfer credit toward a Master's degree.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 24 semester hours of graduate work must be completed while registered as a degree candidate in the College of General Studies.

The thesis and thesis seminar (6 semester hours) may be included in the 24 hours of course work taken in residence. A graduate student who transfers from another division of the University is required to have a minimum of 12 hours of course work as a degree candidate in the College of General Studies.

SCHOLARSHIP

An average of *B* or better is required for the Master's degree. For details, see pages 14-16. A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the Committee on Scholarship.

THESIS

Theses are required of candidates for the degrees of Master of Science in Business Administration and Master of Science in International Affairs.

With the approval of the adviser, a thesis may be substituted for 6 semester hours of elective credit toward the degree of Master of Science in Administration.

The thesis subject and the thesis in its final form must be approved by the director of the thesis and the faculty adviser and presented to the Dean no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available at the Receptionist's desk at the College of General Studies.

Payment of tuition for the thesis entitles the candidate, during the two semesters he registers for thesis (299-300), to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, additional time (see below) may be granted without further tuition.

* Not applicable to candidates for the degrees of Master of Science in Business Administration or Master of Science in International Affairs in the War Colleges' program.

payment. *The student must, however, maintain continuous registration during this period.* In the School of Government and Business Administration, if the preparation of the thesis extends more than three semesters beyond the date the student registers for thesis 300, he must register for the entire 6 hours of thesis again and pay tuition as for a repeated course. In the School of Public and International Affairs, the additional time which may be granted without further tuition payment is one calendar year beyond the period of registration for thesis 299-300; if the preparation of the thesis extends beyond the additional calendar year, the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

COURSE SUBSTITUTION

It is the responsibility of the student to get written approval from the faculty adviser and the Dean prior to registration for any course substitution. Forms for requesting substitution are available at the College of General Studies.

MASTER'S COMPREHENSIVE EXAMINATIONS

The Master's candidate is required to pass a written Master's Comprehensive Examination. Before applying for the examination, the student must complete the required courses, all of the courses in his area of concentration, and any prerequisite courses specified in his admission letter; and he must have maintained a 3.00 (B) average. In writing the examination, the student is expected to correlate what he has learned in his course work and his reading in the literature of the field. The examinations are conducted at the University in December for students graduating in February and in April for students graduating in June. Dates for the Master's Comprehensive Examinations are announced in the *Off-campus Schedule of Classes*. Master's Comprehensive Examination dates for the off-campus center at Newport, R.I., will be announced by the Director of the Center. At the time of the examination a candidate may be required to submit to the examination committee copies of articles published, pertinent staff studies, reports, etc., prepared during the period of graduate study, as additional evidence of Master's competency.

MASTER OF SCIENCE IN ADMINISTRATION*

This degree program provides a course of study appropriate for those students currently working in government or industry. It is a professional degree, preparing graduates for positions of higher and broader responsibility and generally improving their competence as administrators. This degree is *not* in itself a sufficiently broad preparation for continued study toward a Doctor of Business Administration or Doctor of Public Administration degree, and students expecting to continue in a doctoral program should consult the Committee on Doctoral Studies in the School of Government and Business Administration concerning appropriate electives.

The University cannot guarantee that all courses in this curriculum will be offered at every center. However, any off-campus student who has been admitted to degree candidacy may arrange to complete his curriculum by registering on campus.

* Not open to students in the Military Cooperative Programs.

PREREQUISITE

A student must meet the general requirements for admission to degree candidacy as listed on pages 29-30.

REQUIRED COURSES

	Semester Hours
B&PA 201: Advanced Administrative Management.....	3
*B&PA 204: Quantitative Factors in Administration.....	3
B&PA 207: Human Behavior in Organizations.....	3
B&PA 263: Organization and Management.....	3
B&PA 287: Relations of Government to Business.....	3
Total.....	15
†Area of Concentration:	15
Elective: (B&PA 295 Research Methods, recommended) or	6
Thesis: (B Ad 299-300 or P Ad 299-300).....	6
Total.....	36

Areas of Concentration

I. AUTOMATIC DATA PROCESSING

Faculty Adviser: John Francis McCarthy, Jr., Associate Professor of Business Administration. 2129 G Street, N.W.; Telephone: 676-7089

This area of concentration provides a broad understanding of the principles of manual, mechanical, and electronic data processing, including computer programming concepts, methods, and languages; an appreciation of the capabilities and the limitations of data processing equipment; a knowledge of the phases of management information systems development; and an understanding of management's role in data processing. It provides an appreciation of the role of data processing as a tool of management.

	Semester Hours
B&PA 218: Survey of Data Processing.....	3
B&PA 219: Digital Computer Programming Concepts.....	3
B&PA 220: Comparative Digital Computer Systems and Their Management	3
B&PA 221: Management Information Systems Development and Application	3
B&PA 223: Management of a Data Processing Organization.....	3
Total	15

* B&PA 204 is waived for students electing Management Science-Operations Research as an area of concentration.

† Eighteen semester hours are required in Management Science-Operations Research area of concentration.

II. BUSINESS FINANCIAL MANAGEMENT (Formerly Controllershship)

Faculty Adviser: Edward J. Mock, Associate Professor of Business Finance. Chapin 109; Telephone: 676-6893

This area of concentration provides a background in business budgeting, controllershship, treasury, long-range planning, reporting, and financial management processes. Courses are designed to emphasize the planning, analysis, implementation, and controls necessary for making effective financial decisions.

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	3
Acct 276: Management Planning and Control.....	3
B Ad 231: Corporate Financial Problems.....	3
B Ad 232: Seminar: Business Finance.....	3
B Ad 233: Seminar: International Business Finance.....	3
Total.....	15

III. BUSINESS MANAGEMENT

Faculty Adviser: George Frederick Conner, Assistant Professor of Business Administration. Government 401; Telephone: 676-7097

This area of concentration, with its prerequisites, provides the essentials of business administration with emphasis upon managing the finance, production, marketing, and accounting functions of a business firm. These functions are integrated in a final course using actual business cases.

PREREQUISITE

Nine semester hours in Mathematics, 6 semester hours in Economics, and 3 semester hours each in Accounting, Business Administration, and Statistics

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	3
B Ad 225: Seminar: Manufacturing Production.....	3
B Ad 231: Corporate Financial Problems.....	3
B Ad 241: Advanced Marketing Management.....	3
B Ad 297: Case Studies in Business Administration.....	3
Total.....	15

IV. GOVERNMENTAL ADMINISTRATION

Faculty Adviser: Daniel Raymond Cloutier, Professor of Public Administration. Government 308; Telephone: 676-6064

This area of concentration emphasizes policy formulation and administration in government. It provides the broad dimensions of public administration for those preparing for managerial responsibility in the public service.

	Semester Hours
P Ad 213: Administration in Government.....	3
P Ad 231: Public Personnel Administration.....	3
P Ad 251: Governmental Budgeting	3

	Semester Hours
P Ad 252: Problems in Planning, Programming, and Budgeting.....	3
P Ad 260: Seminar: Policy Formulation and Administration.....	3
Total.....	15

V. INDUSTRIAL PERSONNEL MANAGEMENT

Faculty Adviser: Joe Lee Jessup, Professor of Business Administration. Government 312; Telephone: 676-6068

This area of concentration provides a basic academic and professional foundation, equipping the student for administrative responsibility in industrial personnel management. The courses cover the fields of personnel management, industrial relations, unionism, collective bargaining, labor relations, and manpower development and utilization.

	Semester Hours
B Ad 208: Personnel Management and Industrial Relations.....	3
B Ad 209: Seminar: Personnel Management.....	3
B Ad 212: Unionism and Collective Bargaining.....	3
B Ad 213: Current Issues in Unionism, Collective Bargaining, and Labor Relations	3
P Ad 233: Seminar: Manpower Development and Utilization.....	3
Total.....	15

VI. INTERNATIONAL COMMERCE

Faculty Adviser: Phillip Donald Grub, Associate Professor of Business Administration. Government 310; Telephone: 676-6062

This area of concentration prepares students for careers in firms operating on a multinational basis or about to enter the international field; for careers in the federal government and in international agencies concerned with business, industry, and finance abroad; and for the Commerce option of the Foreign Service Officer Examination.

	Semester Hours
B Ad 233: Seminar: International Business Finance.....	3
B Ad 248: International Marketing	3
B Ad 255: Seminar: International Trade I.....	3
B Ad 256: Seminar: International Trade II.....	3
B Ad 257: The Manager in the World Economy.....	3
Total.....	15

VII. MANAGEMENT ENGINEERING

Faculty Adviser: George Richard Allen, Associate Professor of Business Administration. 2129 G Street, Room 405; Telephone: 676-7184

This area of concentration provides a background for industrial management. Courses cover organization and functioning of industrial firms, and the management practice and problems of such firms.

THE MASTER'S DEGREES 35

	Semester Hours
B Ad 225: Seminar: Manufacturing Production.....	3
B Ad 229: Seminar: Administration of Research and Development.....	3
B Ad 280: Procurement and Contracting.....	3
B&PA 268: Management Engineering	3
Econ 217: Survey of Economics.....	3
Total.....	15

VIII. MANAGEMENT SCIENCE-OPERATIONS RESEARCH*

Faculty Adviser: Charles Bradley, Professor of Business Economics. Building Y, Room 10; Telephone: 676-6378

This area of concentration develops a thorough understanding of quantitative or mathematical approaches to problems of managerial control and decision making. While the program will develop a competent background in basic mathematical theory associated with the various techniques, the program is oriented towards applications of the techniques rather than their theoretical mathematical content.

	Semester Hours
B&PA 225-26: Statistics and Probability as Applied to Management Problems	6
B&PA 227: Mathematical Programming: Techniques and Applications	3
B&PA 228: Systems Analysis by Simulation.....	3
Additional courses now in preparation.....	6
Total.....	18

IX. PROCUREMENT AND CONTRACTING

Faculty Adviser: Harry Robert Page, Associate Professor of Business Administration. Government 201; Telephone: 676-6115

This area of concentration provides a basic academic and professional foundation, equipping the student for administrative responsibility in procurement and contracting. The courses cover industrial purchasing, procurement activities of the federal government, and contracting activities of vendors to the federal government.

	Semester Hours
B Ad 280: Procurement and Contracting.....	3
B Ad 281: Purchasing Principles and Practices.....	3
B Ad 282: Government Contract Administration.....	3
B Ad 283: Pricing and Negotiation.....	3
B Ad 285: Systems Procurement and Project Management.....	3
Total.....	15

* B&PA 204 Quantitative Factors in Administration is waived in this area of concentration.

X. PUBLIC FINANCIAL MANAGEMENT AND BUDGETING

Faculty Adviser: Karl Ernest Stromsem, Professor of Public Administration. Government 201; Telephone: 676-6295

This area of concentration provides a broad foundation for work in governmental planning, programming, budgeting; and for controllership and related financial management activities. Its main stress is on financial processes and decision making in the public service.

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	3
Econ 218: Survey of Economics.....	3
P Ad 213: Administration in Government.....	3
P Ad 251: Governmental Budgeting	3
P Ad 252: Problems in Planning, Programming, and Budgeting.....	3
Total.....	15

XI. PUBLIC PERSONNEL MANAGEMENT

Faculty Adviser: Waldo Sommers, Professor of Public Administration. Government 1A; Telephone: 676-6742

This area of concentration provides a basic academic and professional foundation, equipping the student for administrative responsibility in public personnel management. The courses cover the federal administrative organization and process; principles, functions, and problems of personnel administration in the public service; unionism and collective bargaining; and manpower development and utilization.

	Semester Hours
B Ad 212: Unionism and Collective Bargaining.....	3
P Ad 213: Administration in Government.....	3
P Ad 231: Public Personnel Administration.....	3
P Ad 232: Problems in Public Personnel Management.....	3
P Ad 233: Seminar: Manpower Development and Utilization.....	3
Total.....	15

XII. SYSTEMS MANAGEMENT

Faculty Adviser: Marvin Milton Wofsey, Associate Professor of Management. 2129 G Street, Room 405; Telephone: 676-7183

This area of concentration provides a basic academic and professional foundation, equipping the student for administrative responsibility in computer-based systems. The courses cover computers, data processing, operations research, and the theory and management of systems.

	Semester Hours
B&PA 218: Survey of Data Processing.....	3
B&PA 220: Comparative Digital Computer Systems and Their Management	3
B&PA 223: Management of a Data Processing Organization.....	3
B&PA 228: Systems Analysis by Simulation.....	3
B&PA 268: Management Engineering	3
Total.....	15

ELECTIVE COURSES

A student who elects *not* to write a thesis, and/or whose background makes it unnecessary for him to take all of the prescribed courses in his program, selects elective courses with the written approval of the faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed below. The faculty adviser may approve other related courses as electives.

- Acct 215: Survey of Managerial Accounting (3)
- Acct 276: Management Planning and Control (3)
- B Ad 208: Personnel Management and Industrial Relations (3)
- B Ad 209: Seminar: Personnel Management (3)
- B Ad 212: Unionism and Collective Bargaining (3)
- B Ad 213: Current Issues in Unionism, Collective Bargaining,
and Labor Relations (3)
- B Ad 225: Seminar: Manufacturing Production (3)
- B Ad 229: Seminar: Administration of Research and Development (3)
- B Ad 231: Corporate Financial Problems (3)
- B Ad 232: Seminar: Business Finance (3)
- B Ad 233: Seminar: International Business Finance (3)
- B Ad 241: Advanced Marketing Management (3)
- B Ad 248: International Marketing (3)
- B Ad 255: Seminar: International Trade I (3)
- B Ad 256: Seminar: International Trade II (3)
- B Ad 257: The Manager in the World Economy (3)
- B Ad 280: Procurement and Contracting (3)
- B Ad 281: Purchasing Principles and Practices (3)
- B Ad 282: Government Contract Administration (3)
- B Ad 283: Pricing and Negotiation (3)
- B Ad 285: Systems Procurement and Project Management (3)
- B Ad 297: Case Studies in Business Administration (3)
- B&PA 218: Survey of Data Processing (3)
- B&PA 219: Digital Computer Programming Concepts (3)
- B&PA 220: Comparative Digital Computer Systems and Their
Management (3)
- B&PA 221: Management Information Systems Development and
Application (3)
- B&PA 223: Management of a Data Processing Organization (3)
- B&PA 225-26: Statistics and Probability as Applied to Management
Problems (3-3)
- B&PA 227: Mathematical Programming: Techniques and Applications (3)
- B&PA 228: Systems Analysis by Simulation (3)
- B&PA 295: Research Methods (3)
- P Ad 213: Administration in Government (3)
- P Ad 215: Comparative Administrative Systems (3)
- P Ad 217: Seminar: Developmental Administration (3)
- P Ad 221: Management in the Executive Branch (3)
- P Ad 223: Behavioral Factors in Large Organizations (3)
- P Ad 231: Public Personnel Administration (3)
- P Ad 232: Problems in Public Personnel Management (3)
- P Ad 233: Seminar: Manpower Development and Utilization (3)
- P Ad 235: Technological Change and Manpower (3)
- P Ad 246: Urban Dynamics (3)
- P Ad 248: Financing Metropolitan Services (3)
- P Ad 249: Administration in Metropolitan Area Governments I (3)

- P Ad 250: Administration in Metropolitan Area Governments II (3)
- P Ad 251: Governmental Budgeting (3)
- P Ad 252: Problems in Planning, Programming, and Budgeting (3)
- P Ad 254: Seminar: Financial Management in the Federal Service (3)
- P Ad 260: Seminar: Policy Formulation and Administration (3)
- P Ad 261: The Public and the Administrator (3)
- P Ad 262: Seminar: Science, Technology, and Public Policy (3)
- P Ad 298: Case Studies in Public Administration (3)

MILITARY COOPERATIVE PROGRAMS

In cooperation with the Industrial College of the Armed Forces, Fort McNair, Washington, D.C., a program of study is offered leading to the degree of Master of Science in Business Administration. This program is open only to current students and faculty of the Industrial College of the Armed Forces.

In cooperation with the National War College, Fort McNair, Washington, D.C.; and the Naval War College, Newport, R.I., a special program of study is offered leading to the degree of Master of Science in International Affairs. This program is open only to current War College students and faculty and to War College graduates eligible under the contractual arrangements.

Robert Carter Burns, M.A., *Director, National War College Center, Fort McNair, Washington, D.C.*

Clyde Bailey Sargent, Ph.D., *Acting Director, Naval War College Center, Newport, R.I.*

Hiram Miller Stout, Ph.D., *Faculty Adviser, National War College, Fort McNair, Washington, D.C., and Naval War College, Newport, R.I.*

Edward Timbers, Ph.D., *Faculty Adviser, Industrial College of the Armed Forces, Fort McNair, Washington, D.C.*

Conferences, Seminars, and Institutes

THE COLLEGE OF GENERAL STUDIES presents a variety of conferences, seminars, and institutes designed to meet the needs of business, industry, and professional groups. Activities are scheduled on campus and at Airlie House Conference Center near Warrenton, Virginia.

Conferences, seminars, and institutes are designed to meet the specific educational needs of the groups involved. Prominent in the fields of interest are programs emphasizing management skills (all levels), executive development, data processing and computer concepts, personnel management and training, human behavior and communication, long-range planning, budgeting and executive control, procurement and contracting, employee selection and appraisal, production and cost control, market research and analysis, labor relations, public relations, and many others.

Program content, duration, and location are planned to meet the needs of the participating groups.

For further information, consult Richard H. Ross, M.B.A., Director of Conferences, Seminars, and Institutes, College of General Studies. Telephone: 676-7237.

Continuing Education for Women

Ruth H. Osborn, M.A., Ed.D., *Director of Continuing Education for Women*
 Ruth S. Wanger, M.A., *Assistant to the Director*
 Abbie O. Smith, M.A., *Off-campus Adviser*

IN ACCORDANCE with the University's policy of encouraging adults to continue their studies throughout life, the College of General Studies initiated a special program for women in 1964 to meet the needs of adult women.

DEVELOPING NEW HORIZONS FOR WOMEN

"Developing New Horizons for Women" is offered each semester to assist women in developing their potential through understanding themselves as individuals and as women; gaining confidence in their abilities; and becoming acquainted with educational, occupational, and community service opportunities.

Since 1964 almost 900 women have completed this 15-week group guidance course which includes lectures, group discussion, guest speakers, psychological tests, and individual counseling. Participants attend class one day a week from 10 a.m. to 12 noon.

Most of the women attending these classes are homemakers who range in age from 21 to 60. Some of them have earned graduate and professional degrees, while some have no previous college education. Approximately one half of the enrollees have earned a Bachelor's degree.

For further information about "Developing New Horizons for Women" please telephone the Office of Continuing Education for Women, 676-7036.

OFF-CAMPUS DAYTIME CREDIT COURSES

To enable women to combine their homemaking responsibilities with formal education, the College of General Studies offers 15 courses, for both undergraduate or graduate credit, off campus each semester at convenient hours and locations for homemakers. Churches and community centers in Alexandria, Arlington, McLean, Springfield, and Falls Church, Virginia; Bethesda, Chevy Chase, Kensington, and Takoma Park, Maryland; as well as the District of Columbia, have provided classroom space.

Each credit course meets one day a week between 10 a.m. and 12:30 p.m. Selected University professors and persons of recognized academic and professional competence are asked to teach in this program. Upon successful completion of off-campus credit courses, many women are encouraged to apply for degree candidacy at George Washington University. Some women transfer credits earned in these courses to colleges and universities in other parts of the United States.

To receive a current brochure of courses offered, telephone the Office of Continuing Education for Women, 676-7036.

Noncredit Programs

IN RECOGNITION of the impact of the increasing complexity and specialization of modern life, the College of General Studies sponsors credit and noncredit courses, institutes, lectures, and programs designed to encourage continuing education for all throughout life.

Courses in the liberal arts are offered to widen the horizons of those who have been forced to specialize to meet the requirements of technical professions. Refresher courses and seminars are offered to help specialists keep abreast of rapid advancement of knowledge and to facilitate the return of women to academic life. Courses on writing, speaking, and modern languages provide opportunities for increasing skill in self-expression. Programs to develop leadership are planned in cooperation with organizations.

A regular program of noncredit courses without entrance requirements is offered each semester by the College. Informal off-campus and on-campus programs and courses of any desired length may be initiated at any time at the request of an interested group.

Information about entering or initiating courses in continuing education may be obtained from Jessie Edith Mullins, M.A., Director of Noncredit Courses. Telephone: 676-7047.

Noncredit courses include the following:

COURSES DESIGNED TO INCREASE PERSONAL COMPETENCE IN EVERYDAY LIVING

Fundamentals of Investment
Group Tutoring in English
Investment Management
Managing Your Money
Planning for the Later Decades of Life
Psychology Applied to Everyday Living
Seminar on the Law as It Affects Women
Voice and Diction

COURSES OFFERED TO IMPROVE VOCATIONAL AND PROFESSIONAL COMPETENCE

An Introduction to Creative Thinking
Business Management Institute
Effective Speech Communication
Executive Seminar: Effective Oral Communication
Group Discussion and Conference Leadership
Management Communication
Management for Research, Development, and Testing Laboratories
Mathematical and Statistical Topics for Accountants
Mathematics Refresher
Preparation of Summaries: Report Writing
Studies in Management
Workshop in Creative Writing
Writing for Children

Writing for Television and Radio
Written Communication

COURSES PLANNED FOR THE ENRICHMENT OF HOME AND FAMILY LIFE

Building or Buying Your Home
Enjoying Art with Your Child
Helping Your Teenager Understand Himself and His World
Parents and Children: Understanding One Another
Understanding Modern Mathematics

**WIDENING HORIZONS AND INCREASING ENJOYMENT OF
LIFE THROUGH THE ARTS**

Art Appreciation
City and Nation Seminars
Enjoying the Theater
France through Its Literature
Introduction to the Cultural History of Russia
Languages for the Tourist
Music Appreciation
Silk Screen Printing
The Modern Japanese Novel
Understanding the Arts

UNDERSTANDING MODERN SCIENCE

Descriptive Astronomy
Refresher Courses in Science

PROGRAM SERVICE FOR ORGANIZATIONS

Parliamentary Procedure
Program Planning for Organizations

ORIENTATION AND TRAINING PROGRAMS FOR STUDENTS

American Speech and Diction
How to Study
Workshop for Foreign Students

OTHER PROGRAMS IN THE NATION'S CAPITAL

Advanced Genealogy Seminar
Essentials of Philately
Genealogy and Heraldry
History of Art
How to Plan a Motor Tour
Looking at Paintings
Seminar on Religion
The Literary Marketplace
Traditional Washington and Its Heritage

Off-campus Centers

AN ASTERISK (*) preceding the name of a Center indicates membership in the Federal Triangle Educational Association, an organization of Federal Agencies situated in the Federal Triangle Area of downtown Washington, D.C.

Accounts, Bureau of (See Department of the Treasury)

Alexandria Public Schools, Alexandria, Va. 22314

Robert Parlier, Director, Secondary Education
Office: 418 S. Washington Street
Telephone: 549-9100

Anne Arundel County Public Schools, Annapolis, Md. 21402

Mrs. Ruth Dudderar, Assistant Superintendent
Office: Anne Arundel County Board of Education, Green Street
Telephone: Area code 301, 268-3345

Arlington County Public Schools, Arlington, Va. 22201

Harold Mack, Director, Secondary Education
Office: 1426 N. Quincy Street
Telephone: 522-7700

Army Map Service, Washington, D.C. 20315

Education Directors: Jerome E. McClain, Chief, Employee Development Division;
Edward T. O'Brien, Personnel Specialist
Office: Erskine Hall, 6500 Brooks Lane, N.W.
Telephone: 986-2385
Field Representative for the University: John H. McCalla
Telephone: 676-7024
Type of Course Offered: undergraduate program leading to the degrees of Bachelor of Science in Geodetic and Cartographic Science and Bachelor of Science in Oceanography
Open to employees of the Army Map Service and others by permission of the Commanding Officer

Atlantic Research Corporation, Alexandria, Va. 22314

Education Director: Frederick H. Black, Jr., Assistant Director of Personnel
Office: Room 313E, Corporate Headquarters Building, Shirley Highway at Edsall Road
Telephone: 354-3400, Extension 504
Field Representative for the University: Michael G. O'Connor
Telephone: 676-7023
Open to selected personnel by permission of the Assistant Director of Personnel

Bolling Air Force Base, Washington, D.C. 20332

Education Director: Anthony Witkowski
Office: Room 2108, Building 410
Telephone: 562-9000, Extension 679

Field Representative for the University: Joseph E. Johnston
 Telephone: 676-7022
 Open to military and civilian personnel of the Air Force and to others by permission of the Commanding Officer

Building T-7, Gravelly Point, Washington, D.C. 20315

Education Director and Chairman of the Department of Defense Education and Training Advisory Council: Philip F. Strauss
 Office: Room 3C147, The Pentagon
 Telephone: 697-8015 or 697-2823

ARMY MATERIEL COMMAND

Program Coordinator: Mrs. Lois Richards
 Office: Room 2524, Building T-7
 Telephone: 697-9279
 Employee Development Officer: Wallace Buell
 Office: Room 1534, Building T-7
 Telephone: 697-0341

ARMY OFFICE OF CHIEF OF ENGINEERS

Program Coordinator: Frank H. Callahan
 Office: Room 2412, Building T-7
 Telephone: 695-5457

Field Representative for the University: Alvin R. Glafka
 Telephone: 676-7064
 Open only to active duty military personnel and Department of Defense civilians.

Bureau of the Census, Washington, D.C. 20233

Education Directors: James Vawter, Chief, Employee Development Branch, Personnel Division; John Hickey, Employee Development Officer, Personnel Division
 Office: Room 1370, Building FOB 3, Suitland, Md.
 Telephone: Area code 301, 440-1524
 Field Representative for the University: John H. McCalla
 Telephone: 676-7024
 Open to all employees of the Bureau of the Census and the Naval Oceanographic Office and to others by permission

***Bureau of Customs, Washington, D.C. 20226**

Education Director: James J. Doherty, Director, Training and Career Development
 Office: 2100 K Street, N.W.
 Telephone: 964-8000
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

***Bureau of Domestic and International Business, Washington, D.C. 20230**

Education Directors: Melvin Finn, Chief, Employee Development Branch; Mrs. Jane deLauder and Mike Patchan, Jr., Employee Development Officers
 Office: Room 1515, Commerce Department Building, 14th Street and Constitution Avenue, N.W.
 Telephone: 967-4974

Field Representative for the University: Robert W. Stewart, Jr.
Telephone: 676-7018

Open to employees of the Department of Commerce and to personnel of other government agencies by permission

***Bureau of Narcotics, Washington, D.C. 20226**

Education Director: Nathanael Bentson, Personnel Officer

Office: Room 603, 633 Indiana Avenue, N.W.

Telephone: 964-3798 or 964-4831

Field Representative for the University: Robert W. Stewart, Jr.
Telephone: 676-7018

Bureau of Naval Personnel, Washington, D.C. 20370

Education Directors: Capt. J.J. Creamer, USN, Head, Education and Training Branch;
Jack Wilkerson, Deputy Head; Allen S. Cooney, Special Programs Coordinator

Office: Room 4077, Arlington Annex

Telephone: 694-1269

Field Representative for the University: Joseph E. Johnston
Telephone: 676-7022

Open to military personnel on active duty in the Department of the Navy by quota assigned to the various bureaus and offices.

Calvert County Public Schools, Prince Frederick, Md. 20678

Maurice A. Dunkle, Superintendent of Schools

Office: Calvert County School Board, Dares Beach Road

Telephone: Area code 301, 535-1700

Charles County Public Schools, LaPlata, Md. 20646

Charles Stackey, Assistant Superintendent

Office: Charles County Board of Education, Health and Education Building

Telephone: Area code 301, 934-4671

***Civil Service Commission, Washington, D.C. 20415**

Education Director: John W. Murtha, Director of Personnel

For information contact Employee Development Officer, Personnel Division, Room 1679, 1900 E Street, N.W.

Telephone: 343-6119

Field Representative for the University: Robert W. Stewart, Jr.
Telephone: 676-7018

Open to employees of the Civil Service Commission and to personnel of other government agencies by permission

Coast and Geodetic Survey (see Environmental Science Services Administration)

***Coast Guard, Washington, D.C. 20591**

Education Directors: Jasper L. Kranke, Supervisory Training Officer; Carl W. Easton, Training Officer

Office: Room 3012, U.S. Coast Guard Building, 1300 E Street, N.W.

Telephone: 964-8103

Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Coast Guard and to personnel of other government agencies by permission

David Taylor Model Basin (see Naval Ship Research and Development Center)

***Department of Justice, Washington, D.C. 20530**

Education Director: Daniel Keenan, Departmental Training Officer
 Office: Room 1229, Justice Department Building, 10th Street and Pennsylvania Avenue, N.W.

Telephone: 737-8200, Extension 3256

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Department of Justice and to personnel of other government agencies by permission

***Department of Labor, Washington, D.C. 20210**

Education Director: Kenneth R. Bute
 Office: Room 6417, Labor Department Building, 14th Street and Constitution Avenue, N.W.

Telephone: 961-2101

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Department of Labor and to personnel of other government agencies by permission

Department of State, Washington, D.C. 20520

Liaison Officer: Mrs. Barbara Morlet, Training Specialist, Extension Studies Program,
 Office for Academic Relations

Office: Room 1106, Foreign Service Institute, State Annex 3, Washington, D.C.

Telephone: 383-8549 or 383-5919

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Department of State, C.I.A., and U.S.I.A.

***Department of the Treasury, Washington, D.C. 20226**

BUREAU OF ACCOUNTS

Education Director: Mrs. Hale A. Ament, Employee Development Officer
 Office: Room 112, Treasury Annex Number 1, Pennsylvania Avenue and Madison Place, N.W.

Telephone: 964-5565

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

District of Columbia General Hospital, Washington, D.C. 20003

Associate Director, Nursing Service Education: Miss Virginia Sage
Office: Anne Archbold Hall, District of Columbia General Hospital, 19th and Massachusetts Avenue, S.E.

Telephone: 626-5336

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to employees of the District of Columbia General Hospital and others by permission

***District of Columbia Government, Washington, D.C. 20001**

Education Directors: Benjamin Ludwig, Chief of Training; C. Howard Larson, Employee Development Officer

Office: Room 211, District of Columbia Government Building, 499 Pennsylvania Avenue, N.W.

Telephone: 629-2270 or 629-2997

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the District of Columbia Government and to personnel of other government agencies by permission

Education Courses for Teachers (see separate listings under individual Public Schools)

Environmental Science Services Administration, Rockville, Md. 20852

Education Directors: Mrs. Muriel Christgau, Training Branch, Personnel and Safety Division; Paul F. Murphy, Employee Development Officer

Office: Room 412, Building 5, Washington Science Center, 11800 Old Georgetown Road, Rockville, Md.

Telephone: 496-8261

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Type of Course Offered: undergraduate courses leading to the degrees of Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography

Open to all employees of the Department of Commerce and to others by permission.

Fairfax County Public Schools, Fairfax, Va. 22150

W. Harold Ford, Assistant Superintendent for Instruction

Office: 10700 Page Avenue

Telephone: 273-6500

***Federal Aviation Administration, Washington, D.C. 20590**

Education Director: Mrs. Phyllis Burbank, Employee Development Specialist

Office: Room 505, 800 Independence Avenue, S.W.

Telephone: 962-1803

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Federal Aviation Administration and to personnel of other government agencies by permission

Federal Bureau of Investigation, Washington, D.C. 20535

Special Agent: William E. Clark, Personnel Office
 Office: Room 4513, Justice Department Building, 9th Street and Pennsylvania Avenue, N.W.
 Telephone: 393-7100, Extension 402
 Field Representative for the University: John H. McCalla
 Telephone: 676-7024
 Open only to employees of the Federal Bureau of Investigation

***Federal Communications Commission, Washington, D.C. 20554**

Education Director: Mrs. June Eisenberger
 Office: Room 208, 1919 M Street, N.W.
 Telephone: 632-7120
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Federal Communications Commission and to personnel of other government agencies by permission

Federal Reserve Board, Washington, D.C. 20551

Education Directors: Mrs. June E. Burns, Assistant to the Director, Division of Personnel Administration; Miss Sudelle Rice, Personnel Technician
 Office: Federal Reserve Building, 20th Street and Constitution Avenue, N.W.
 Telephone: 737-1100, Extension 435 (Mrs. Burns); Extension 404 (Miss Rice)
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to all government employees and others by permission

Fort Belvoir, Va. 22060

Education Director: Eric Eber; John R. Gantz, Education Adviser
 Office: Building T-1483
 Telephone: 780-1100, Extension 43154 or 44546
 Field Representative for the University: Michael G. O'Connor
 Telephone: 676-7023
 Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Fort Eustis, Va. 23604

Education Director: John Williams
 Office: Building S711, Educational Development Services, Lee Blvd. and 12th Street
 Telephone: Area code 703, 878-3731 or 878-5508
 Director for the University at George Washington University Center (Tidewater Area), Fort Monroe, Va.: Robert C. Sedwick
 Office: Building T-181
 Telephone: 727-3363 or 727-3770
 Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Fort McNair, Washington, D.C. 20315

Educational Adviser: Miss Margaret Lockwood
 Office: Building 20A, Second Floor, Post Education Center
 Telephone: 527-9400, Extension 268

Field Representative for the University: Joseph E. Johnston
Telephone: 676-7022
Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Fort George G. Meade, Md. 20755

Education Director: Gustaf E. Berglund
Office: Building 303, Army Education Center
Telephone: 677-6421

Field Representative for the University: John F. Lobuts
Telephone: 676-7015
Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Fort Monroe, Va. 23351

Education Director: Henry C. Stone
Office: Casemate 22, Education Center
Telephone: Area code 703, 727-2454 or 727-3692
Norfolk Office: Room 610, Building N23, N.O.B., Norfolk, Va. 23351
Telephone: Area code 703, 423-2839

Director for the University at George Washington University Center (Tidewater Area), Fort Monroe, Va.: Robert C. Sedwick
Office: Building T-181
Telephone: 727-3363 or 727-3770
Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Fort Myer, Va. 22208

Educational Adviser: Miss Margaret Lockwood
Office: Building 604, South Area, Post Education Center
Telephone: 697-0607

Field Representative for the University: Joseph E. Johnston
Telephone: 676-7022
Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer

Gramax Building, 8060 13th Street, N.W., Silver Spring, Md. 20910

Education Directors: Mrs. Muriel Christgau, Training Branch, Personnel and Safety Division; Paul F. Murphy, Employee Development Officer
Office: Room 412, Building 5, Washington Science Center, 11800 Old Georgetown Road, Rockville, Md.
Telephone: Area code 301, 496-8261

Field Representative for the University: John H. McCalla
Telephone: 676-7024

Type of Course Offered: undergraduate courses leading to the degrees of Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography
Open to all employees of the Department of Commerce and to others by permission

Gravelly Point (see Building T-7)

Industrial College of the Armed Forces, Fort McNair, Washington, D.C. 20315

Project Officer: Col. Haydon J. Price, USA
 Office: Room 206, Industrial College of the Armed Forces
 Telephone: 695-8305
 Director for the University: Edwin Timbers
 Office: Room 206, Hall of Government, 710 21st Street, N.W.
 Telephone: 676-6825
 Type of Course Offered: graduate program leading to the degree of Master of Science in Business Administration
 Open to students and faculty of the Industrial College of the Armed Forces

***Internal Revenue Service, Washington, D.C. 20224**

Education Directors: D.C. Barry, Chief, National Office Training Branch; Miss Ruby Bennett, Employee Development Training Officer
 Office: Room 1315, Internal Revenue Service Building, 12th Street and Constitution Avenue, N.W.
 Telephone: 964-3931
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

***Interstate Commerce Commission, Washington, D.C. 20423**

Education Director: Samuel D. Bingman, Jr., Training Officer
 Office: Room 1418, Interstate Commerce Building, 1111 Constitution Avenue, N.W.
 Telephone: 737-9765, Extension 7116
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Interstate Commerce Commission

Langley Air Force Base, Va. 23365

Education Director: Robert J. Dewey
 Office: Building 1347
 Telephone: 764-3520
 Director for the University at George Washington University Center (Tidewater Area), Fort Monroe, Va.: Robert C. Sedwick
 Office: Building T-181
 Telephone: Area code 703, 727-3363 or 727-3770
 Open to military and civilian personnel of the Air Force and to other government employees by permission of the Commanding Officer

Linthicum Civic Association, Linthicum Heights, Md. 21090

Education Officer: Rodman Kulp
 Office: 406 Sycamore Road
 Telephone: Area code 301, 789-7446

Loudoun County Public Schools, Leesburg, Va. 22075

Caleb J. Gibson, Director of Instruction
 Mrs. Ruth D. Schulke, Supervisor, Elementary Education
 Office: Loudoun County School Board, 20 Union Street
 Telephone: Area code 703, 777-2570

Main Navy Building, Washington, D.C. 20360

Education Directors: Ralph G. Salvagno, Head, Employee Development Branch.
CPD: Miss Kathleen V. Sullivan, Employee Development Officer
Office: Room 0013, Main Navy Building, Constitution Avenue at 18th Street, N.W.
Telephone: 696-6155
Field Representative for the University: Robert W. Stewart, Jr.
Telephone: 676-7018
Open to military and civilian personnel of the Department of Defense

Melpar, Inc., Falls Church, Va. 22046

Education Director: Anthony B. DePasquale, Personnel Relations Manager
Office: Melpar, Inc., 7700 Arlington Blvd.
Telephone: 534-6000, Extension 2450
Field Representative for the University: Michael G. O'Connor
Telephone: 676-7023
Open to selected personnel by permission of the Personnel Relations Manager

Montgomery County Public Schools, Rockville, Md. 20850

Charles Proctor, Director, Staff Development; James Crabtree, Teacher Specialist
Office: Montgomery County School Board, 850 N. Washington Street
Telephone: 762-5000, Extension 395

NASSIF Building, 5611 Columbia Pike, Falls Church, Va. 22041

Education Director and Chairman of the Department of Defense Education and Training Advisory Council: Philip F. Strauss
Office: Room 3C147, The Pentagon
Telephone: 697-8015 or 697-2823

ARMY AUDIT AGENCY

Program Coordinator: Floyd W. Fagg
Office: Room 418, NASSIF Building
Telephone: 692-2291

ARMY COMPTROLLER, AND FINANCE AND ACCOUNTING OFFICE

Program Coordinator: Col. William Maughn, Jr., USA
Office: Room 318, NASSIF Building
Telephone: 692-1479

ARMY MATERIEL COMMAND

Program Coordinator: Mrs. Lois Richards
Office: Room 2524, Building T-7
Telephone: 697-9279

MILITARY TRAFFIC MANAGEMENT AND TERMINAL SERVICE

Program Coordinator: Miss Marjorie C. Mays
Office: Room 406, NASSIF Building
Telephone: 692-1644

Field Representative for the University: Alvin R. Glafka
Telephone: 676-7064

Open only to active duty military personnel and Department of Defense civilians

National Bureau of Standards Graduate School, Washington, D.C. 20234

Registrar: Mrs. Virginia Maxwell

Office: Gaithersburg, Md.

Telephone: 921-1000, Extension 3498

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to all employees of the National Bureau of Standards—also to all employees of other government agencies and to all American citizens, providing they meet the formal prerequisites

National Naval Medical Center, Bethesda, Md. 20014**TRAINING AND EDUCATIONAL SERVICES BRANCH**

Employee Development Officer: Miss Virginia McNeil

Office: Room 32, Building 7

Telephone: 295-0574

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to military and civilian personnel of the Navy, employees of the National Institutes of Health, and to other government employees by permission of the Commanding Officer

National Science Foundation, Washington, D.C. 20550

Training Officer: Herbert L. Morris

Office: 1800 G Street, N.W.

Telephone: 343-7753

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to all government employees by permission of the National Science Foundation

National Security Agency, Fort Meade, Md. 20755

Education Director: Miss Kathleen DeGrange, Administration

Office: Building 1C190

Telephone: 688-7047

Field Representative for the University: John F. Lobuts

Telephone: 676-7015

Academic Counselors: Mrs. Stet Tasker, Mrs. Violet Kilmon

Office: Building 1C190

Telephone: 688-6364

Open only to NSA employees

National War College, Fort McNair, Washington, D.C. 20315

Project Officer: Col. Vernon K. Cammack, USAF

Office: Room 139, National War College

Telephone: 695-8404

Director for the University: Robert C. Burns

Telephone: 676-7049

Type of Course Offered: graduate program leading to the degree of Master of Science in International Affairs

Open to students and faculty of the National War College

Naval Oceanographic Office, Suitland, Md. 20390

Education Directors: Christopher W.P. Naquin, Director; Edmund J. Klukowski, Employee Development Office
 Office: Room G-126, Building FOB 3
 Telephone: Area code 301, 763-1441
 Field Representative for the University: John H. McCalla
 Telephone: 676-7024
 Type of Course Offered: undergraduate programs leading to the degrees of Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography
 Open to military and civilian personnel of the Navy, employees of the Census Bureau; others may obtain permission to attend by calling the Education and Training Office, 440-2592

Naval Ordnance Station, Indian Head, Md. 20640

Education Director: Dominic C. Bizier; Mrs. D. Barron, Career Guidance Counselor
 Office: Industrial Relations Department, Building D-71
 Telephone: Area code 301, 743-5511, Extension 280 or 480
 Field Representative for the University: John H. McCalla
 Telephone: 676-7024
 Open to military and civilian personnel of the Navy and to other government employees and civilians by permission of the Commanding Officer

Naval Research Laboratory, Washington, D.C. 20390

Education Directors: William J. McLaughlin, Head, Training Branch; Carl Reinhardt, Head, Science Education Section
 Office: Building 72, 4555 Overlook Avenue, S.W.
 Telephone: 767-2958
 Field Representative for the University: John H. McCalla
 Telephone: 676-7024
 Open to military and civilian personnel of the Navy at the Naval Research Laboratory and other government employees by permission of the Director, Naval Research Laboratory

Naval Ship Research and Development Center (Annapolis Division), Annapolis, Md. 21402

Education Directors: Price Mosher, Director; Dan Mackie, Employee Development Officer
 Office: Training Center, Building 42
 Telephone: Area code 301, 268-7711, Extension 8210
 Field Representative for the University: John F. Lobuts
 Telephone: 676-7015
 Open to military and civilian personnel of the Navy and to other government employees and civilians by permission of the Commanding Officer

Naval Ship Research and Development Center, Carderock, Md. 20007

Education Director: Lorick F. Fox, Head, Training Division
 Office: Room 226, Building 121
 Telephone: 995-1501

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to military personnel and civilian employees of the Naval Ship Research and Development Center and to other government employees by permission of the Commanding Officer

Naval Supply Center, Norfolk, Va. 23511

Education Director: Mrs. Mary K. Lawson, Director, Industrial Relations Department
Office: Building W-143

Telephone: Area code 703, 444-2144 or 444-4912

Norfolk Office: Room 610, Building N23, N.O.B., Norfolk, Va.

Telephone: Area code 703, 423-2839

Director for the University at George Washington University Center (Tidewater Area), Fort Monroe, Va.: Robert C. Sedwick

Office: Building T-181

Telephone: Area code 703, 727-3363 or 727-3770

Open to military and civilian personnel of the Navy and to other government employees by permission of the Commanding Officer

Naval War College, Newport, R.I. 02840

Project Officer: Capt. T.H. Stetson, USN

Office: Room 113, Luce Hall

Telephone: Area code 401, 841-3021

Acting Director for the University at Newport: Clyde B. Sargent

Office: Room 361, Pringle Hall

Telephone: Area code 401, 847-2629

Type of Course Offered: graduate program leading to the degree of Master of Science in International Affairs

Open to faculty and students of the Naval War College

*Patent Office, Washington, D.C. 20231

Education Director: Willis Hokans, Employee Development Officer

Office: Room 6629, Commerce Department Building, 14th Street and Constitution Avenue, N.W.

Telephone: 967-2871

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Department of Commerce and to personnel of other government agencies by permission

The Pentagon, Washington, D.C. 20310

Director of the Pentagon Education Center, Chairman of the Department of Defense Education and Training Advisory Council, and Education Officer for the U.S. Army: Philip F. Strauss

Assistant to the Director: George L. Bowman

Office: Room 3C147

Telephone: 697-2823 or 697-6805 or 697-8015

U.S. AIR FORCE

Education Officer: Anthony J. Witkowski

Office: Room 5E410

Telephone: 697-1863 or 697-7074

Field Representative for the University: Alvin R. Glafka
 Pentagon Desk: Reception Center on the Concourse
 Telephone: 697-3141
 University Telephone: 676-7064
 Open only to active duty military personnel and Department of Defense civilians

***Post Office Department, Washington, D.C. 20260**

Education Directors: F.L. Royer, Mrs. Jeanne Hoag, Employee Development Officers
 Office: Room 1147, New Post Office Building, 12th Street and Pennsylvania Ave.
 nue, N.W.
 Telephone: 961-8545
 Field Representative for the University: Robert W. Stewart, Jr.
 Telephone: 676-7018
 Open to employees of the Post Office Department and to personnel of other gov-
 ernment agencies by permission.

Prince Georges County Public Schools, Upper Marlboro, Md. 20870

Edward S. Beach, Jr., Director of Curriculum
 Office: Prince Georges County School Board
 Telephone: 627-4800

St. Mary's County Public Schools, Leonardtown, Md. 20650

Robert S. King, Jr., Superintendent of Schools; James Ogden, Supervisor of Instruc-
 tion
 Office: St. Mary's County School Board School of Health Building
 Telephone: Area code 301, GREENWOOD 5-9141

Social Security Administration

BUREAU OF OLD AGE AND SURVIVORS INSURANCE, BALTIMORE, MD. 21235

Employee Development Officers: Clifton Hensler, Mrs. Barbara LeCroy
 Office: Room 4-C-10, Operations Building
 Telephone: Area code 301, 944-5000, Extension 5396
 Field Representative for the University: John F. Lobuts
 Telephone: 676-7015
 Open to employees of the Social Security Administration and to personnel of other
 government agencies by permission

Tidewater Area, Va. (see Fort Monroe)

U.S. Marine Corps Base, Quantico, Va. 20390

Education Officer: Capt. Kate H. Renn, USMC
 Office: Education Office, Building 3041
 Telephone: Area code 703, 640-2121, Extension 26749 or 24744
 Field Representative for the University: Michael G. O'Connor
 Telephone: 676-7023
 Open to military personnel and their dependents and civilian personnel attached to
 the Marine Corps Base. Other selected personnel may be admitted by permission
 of the Commanding Officer

U.S. Naval Academy, Annapolis, Md. 21402

Coordinator for the Academy: William W. Jeffries, Senior Professor of English, History and Government Department

Office: Maury Hall

Telephone: Area code 301, 268-7711, Extension 642

Field Representative for the University: John F. Lobuts

Telephone: 676-7015

Open to military and civilian personnel attached to the Academy and other personnel by permission of the Naval Academy

U.S. Naval School of Hospital Administration, Bethesda, Md. 20014

Commanding Officer: Capt. E.L. Van Landingham, Jr., MSC, USN

Academic Director: LCdr. G.J. Pearce, MSC, USN

Office: Room 131, Building 141

Telephone: 295-1314

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to military personnel assigned to duty under instruction at the U.S. Naval School of Hospital Administration

U.S. Naval Station (see Washington Navy Yard)**Veterans Administration, Washington, D.C. 20420**

Education Directors: Raymond L. Butler, Chief, Employee Relations and Training

Division: Philip L. Loomis, After-hours Training Coordinator

Office: Room 100, Veterans Administration Main Building, Vermont Avenue and H Street, N.W.

Telephone: 389-3101

Field Representative for the University: Robert W. Stewart, Jr.

Telephone: 676-7018

Open to employees of the Veterans Administration and to personnel of other government agencies by permission

Washington Navy Yard, Washington, D.C. 20390

Education Director: Louis A. Vagnoni, Supervisory Training Officer

Office: Second Floor, Building 172, M at 8th Street, S.E.

Telephone: 698-3160

Field Representative for the University: John H. McCalla

Telephone: 676-7024

Open to military and civilian personnel of the Navy and to others by permission of the Commanding Officer

COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the College of General Studies required in degree programs. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

Courses are scheduled in cooperation with Installation Education Directors of the various groups, organizations, agencies, and installations interested in conducting an off-campus program of college courses.

EXPLANATION OF COURSE NUMBERS

Courses are assigned dual numbers. The first is a serial number assigned by the College of General Studies at the time of the registration. The serial number does not appear in this catalogue and is used to distinguish one class from another when the same course is offered simultaneously at different places. The second number is the course number assigned by the department and indicates the academic level of each course, as follows:

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered above 200 are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified seniors; they are not open to other undergraduates.

SEMESTER HOURS OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

Chairman: E.J.B. Lewis, Professor of Accounting; Government 100, Telephone: 676-6055

1-2 Introductory Accounting (3-3)

Preparation, uses, and limitations of financial reports. *First half:* basic financial reporting concepts and data accumulation and processing. *Second half:* introduction to managerial accounting—financial programming, cost determination, and analysis of financial statements. Accounting 1 is prerequisite to Accounting 2.

101 Cost Accounting (3)

Theory and purposes of industrial cost accounting, systems of cost control and determination, analysis and interpretation of cost data. Prerequisite: Accounting 1-2.

111 Financial Statement Analysis (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors. Prerequisite: 6 semester hours of accounting or permission of instructor.

115 Survey of Accounting (3)

Preparation, uses, and limitations of financial information in the management process. Not open for credit to accounting majors.

121-22 Intermediate Accounting (3-3)

First half: accounting for assets and liabilities. Prerequisite: Accounting 1-2 or permission of instructor. *Second half:* partnership, corporation, consignment, and installment-sales accounting. Prerequisite: Accounting 121 or permission of instructor.

141 Governmental Accounting (3)

Appropriation, encumbrance, and fund accounting for governmental and institutional entities. Prerequisite: Accounting 1-2 or permission of instructor.

144 Federal Accounting (3)

Accounting procedures in the Federal Government; emphasis on agency-level accounts and accounting support for cost-based budgets. Prerequisite: Accounting 141 or permission of instructor.

161 Federal Income Taxation (3)

Federal income tax concepts applicable to individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2 or permission of instructor.

171 Auditing (3)

Duties and responsibilities of auditors: principles and procedures of making audits, techniques of verifying financial statement items, preparation of audit working papers and reports. Prerequisite: Accounting 121-22.

181 Accounting Systems (3)

Theory and procedure of designing and installing systems for collecting, recording, analyzing, and presenting accounting and other business data. Prerequisite: Accounting 101, 121-22, and 171, or permission of instructor.

191 Advanced Accounting (3)

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121-22.

193 Business Budgeting (3)

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in management of commercial and industrial organizations. Prerequisite: Accounting 1-2.

215 Survey of Managerial Accounting (2 or 3)

Nature, preparation, analysis, and interpretation of accounting reports; cost accounting, business budgeting, and internal accounting controls and their use in the management process. Prerequisite: Accounting 1-2 or 115 or permission of instructor.

231 Contemporary Accounting Theory (3)

Advanced accounting principles and concepts and recent theories concerned with the valuation and amortization of assets and determination of income. Prerequisite: 6 semester hours of accounting and permission of instructor.

276 Management Planning and Control (3)

Theories and techniques of cost accounting and budgetary planning and control; emphasis on: the relation of planning and control systems to corporate and departmental objectives, control of decentralized operations and discretionary costs, long-range planning and control. Prerequisite: Accounting 101 and Business Administration 102 or Business and Public Administration 201, or permission of instructor.

Anthropology*

Chairman: R.K. Lewis, Associate Professor of Anthropology; X-20, Telephone: 676-6982

1-2 Introductory Anthropology (3-3)

First half: survey of man's origin, physical evolution, and culture history.
Second half: a survey of the world's cultures, illustrating the principles of cultural behavior.

* Anthropology 1-2 is prerequisite to all other courses in Anthropology.

Art

Chairman: L.P. Leite, Professor of Art; Stuart Basement (front), Telephone: 676-6085

1 Art Appreciation (3)

Language and function of art in its various media; development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors.

31-32 Survey of Western Art (3-3)

Survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art.

71-72 Introduction to the Arts in America (3-3)

Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. *First half:* from Colonial beginnings to the Republican Age. *Second half:* from early 19th century to the present.

100 Masterpieces of European Art (3)

Study of the Great Masters and the more important artistic movements, based upon direct observation of the major works of European painting, sculpture, and architecture. Lectures and conducted tours in galleries, museums, and palaces in London, Paris, Florence, Rome, and Madrid with appropriate visits to other nearby points of artistic interest.

110 Contemporary Art (3)

Painting and sculpture in 20th century Europe.

Biological Sciences

Chairman: I.B. Hansen, Professor of Zoology; Bell 301, Telephone: 676-6090

BIOLOGY

1-2 Introductory Biology (4-4) (Campus Course)

Lecture (3 hours), laboratory (3 hours). Introductory course leading to all second- and third-group courses in biology, botany, and zoology; also provides the nonscience student with an understanding of the life sciences. Material fee, \$10 a semester.

Business Administration

Chairman: H.R. Page, Associate Professor of Business Administration; Government 201, Telephone: 676-6115

51 Introduction to Business (3)

The business environment; structure, activities, and problems of enterprise; its contribution to society; careers in business.

102 Fundamentals of Management (3)

Planning, organizing, directing, coordinating, and controlling activities of the administrative unit; evolution of management thinking.

103 Institutional Management (3)

Philosophy of hospital administration: special services, food service, maintenance, internal review.

105 Personnel Management (3)

The labor force and labor markets. Industrial personnel and manpower programs, organizations and policy in personnel activities.

106 Problems in Personnel Management (3)

Principles and problems of personnel management and industrial relations illustrated by cases drawn from industry and government. *Prerequisite:* Business Administration 105.

107 Collective Bargaining (3)

Characteristics of American unionism and collective bargaining; economic, social, and public policy considerations. Management's role in the negotiation and administration of collective bargaining agreements.

109 Office Management (3)

Organization and management of the office, office and information systems, planning and execution of work, systems analysis, supervision problems.

111-12 Personnel Records Administration (3-3)

First half: basic principles, techniques, and methods used in collecting, processing, evaluating, and storing personnel records of all kinds. *Second half:* problems and cases in special kinds of records keeping and records administration.

113 Real Estate (3)

Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation.

118 Introduction to Data Processing (3)

Basic principles and methods of data processing. Introduction to fundamentals, potentials, and problems of automatic data processing for management information systems.

119 Data Processing Programming (3)

Basic principles and methods of computer programming. Introduction to computer programming concepts; form and character of instructions and programming schema for leading types of digital electronic computers. *Prerequisite:* Business Administration 118 or permission of instructor.

120 Data Processing Systems (3)

Basic principles and methods of data systems analysis, design, and implementation. Emphasis on relationship between equipment systems and management information systems; development of data processing systems. *Prerequisite:* Business Administration 118 or permission of instructor.

121 Fundamentals of Insurance (3)

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual.

122 Life Insurance and Estate Planning (3)

Life insurance contracts, their use in providing protection and estate development.

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2.

132 International Business Finance (3)

Introduction to principles, problems, practices, and institutions of international finance. Emphasis on documents and procedures used in international transactions, international financial markets, rates of exchange and balance of payments, and interregional and international aspects of foreign exchange.

136 Credit Management (3)

Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1-2.

138 Investments (3)

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1-2, Business Administration 131.

141 Basic Marketing Management (3)

Introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2.

142 Retail Marketing (3)

(Formerly Business Administration 251 Retail Management)

Retail marketing perspective; problems of location, financing, merchandising policy, advertising and sales promotion, operating policy. Trends in retailing.

143 Marketing Research (3)

Principles and practices of marketing research with particular emphasis on basic methods and techniques, sources and interpretation of data, and presentation of results.

144 International Marketing Management (3)

Introductory course; analysis of the international marketing position of the United States, channels for international marketing, international advertising media, legal aspects of international marketing, methods of preparing foreign market surveys, development of policies.

145 Sales Management (3)

Organization of sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141.

147 Advertising (3)

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a finished advertisement before potential customers; evaluation, criticism, and control of advertising.

158 Physical Distribution Management (3)

Distribution from shipper's point of view: problems of plant location, inventory control, warehousing; traffic management emphasized, including private carriage.

161 Commercial Law: Contracts, Sales, Agency, and Bailments (3)**162 Commercial Law: Negotiable Instruments, Property, Mortgages (3)****163 Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts (3)****171 Principles of Transportation (3)**

Impact of intercity transportation systems on society. Emphasis on modal differences in development, economic characteristics, and regulation.

172 Public Utilities (3)

Legal and economic meaning of public utility concept; development, services, economic characteristics, rate making, and regulation of utility industries, with emphasis on electric, gas, and telephone industries.

173 Transportation Systems Management (3)

Comparative study, from the standpoint of various carrier modes, of management problems common to all modes of domestic and international transportation.

174 Urban Transportation (3)

Problems of developing balanced transportation systems for urban areas—area needs, modal evaluation, cost effectiveness, finance, and marketing.

175 Introduction to Foreign Trade (3)

The physical movement of goods in international business; conditions essential for successful trading; development of a hypothetical export shipment, including examples of documentation required and discussion of procedural problems from a management point of view. Emphasis on ocean marine insurance and export traffic management policy. Prerequisite: Economics 1-2.

176 International Business Theory and Policy (3)

Causal relationships underlying international business transactions, role of government in international trade, international agreements between private producers, trade with developing nations, developing international business policy.

177 Foreign Markets (3)

Patterns of world trade by countries and commodities, selected regional analysis, and in-depth market studies. Prerequisite: Business Administration 144 and 175 or permission of instructor.

178 Management of International Business Operations (3)

Analysis of overseas projects according to purpose and type of organization; case studies involving development and management of overseas marketing programs and other operations in different world areas.

181 Manufacturing Production (3)

Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries.

191 Business Reports and Analyses (3)

Sources of management information, array and analysis of data, interpretation of presentation of findings.

195 Controllership (3)

Duties and responsibilities of the controller in a business organization; relations of controller to other departments and regulatory bodies, the controller's relation to price setting and inventories, depreciation policies, internal auditing, expense control and budgeting; financial reports to management, stockholders, and employees. Prerequisite: Accounting 1-2.

198 Case Problems in Management (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141.

199-200 Research (3-3)**208 Personnel Management and Industrial Relations (3)**

Survey of personnel management practices and procedures, including labor-management relations.

209 Seminar: Personnel Management (3)

Discussion of industrial personnel and manpower management, and research in advanced problems.

210 The Personnel Manager (3)

The personnel manager and his place in the organization, relations of personnel manager to other executives, personnel manager's policy role and relations with chief executive. Key problems of the senior personnel executive.

212 Unionism and Collective Bargaining (3)

The American labor movement. Collective bargaining and the conduct of labor relations under collective bargaining agreements.

213 Current Issues in Unionism, Collective Bargaining, and Labor Relations (3)

Current problems and issues. Prerequisite: Business Administration 212.

225 Seminar: Manufacturing Production (3)

Examination of production technology, including new manufacturing processes, materials, products, equipment, and facilities. Implications of emerging technology in managing the production function. Cases, lectures, and individual student research. Prerequisite: Business Administration 181 or permission of instructor.

229 Seminar: Administration of Research and Development (3)

Examination of technological, political, and economic factors affecting the R&D environment; operational aspects; management problems in military, governmental, and industrial organizations; project selection, resource allocation, personnel, planning and control, measurement and evaluation.

231 Corporate Financial Problems (3)

Financial practice in promotion, consolidation, and mergers; capital structure adjustments; and reorganization.

232 Seminar: Business Finance (3)

Research in advanced financial problems.

233 Seminar: International Business Finance (3)

Problems in international business finance; role of foreign trade and business investment in economic development.

235 Financial Management (3)

Problems of financial management encountered in the organization and operation of a corporation; planning financial structure, obtaining and managing capital, issuing and placing securities, administering income, security arrangements. Primarily taught by the case method. Prerequisite: Accounting 215, 276; Business and Public Administration 201.

237 Investment Analysis (3)

Advanced course in applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138.

241 Advanced Marketing Management (2 or 3)

Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Tools useful in decision making. Case analysis.

242 Seminar: Marketing Theory (3)

Critical review of the development of marketing thought and important marketing literature. Special and current problems and or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 241.

248 International Marketing (3)

Organization for international marketing, foreign demand analysis, product development and policies, marketing structure and trade channels, advertising and promotion problems and policies, pricing, credits and collections, and legal aspects. Particular emphasis on development of effective international marketing strategy.

253 Distribution Logistics (3)

Application of the systems concept to problems of physical distribution and supply of goods. Role of logistics in the economy and the business firm, transportation rates and services, location theory and problems, customer service standards pricing, inventory control, information flow, scheduling, allocation, warehousing, traffic, and logistics system organization.

255 Seminar: International Trade I (3)

Research, analysis, and discussion of public and private foreign trade institutions; principles and theories of international trade; role of foreign trade and investment on U.S. balance of payments; problems and changing patterns in U.S. trade in the Western Hemisphere.

256 Seminar: International Trade II (3)

Research, analysis, and discussion of international problems arising from economic integration; emphasis on European Economic Community; U.S. trade with developing nations; East-West trade problems and potential; foreign trade policy of the United States.

257 The Manager in the World Economy (3)

(Formerly Operation of the Multinational Firm)

Analysis and discussion of problems in international business by use of the case method, including international market entry and expansion; operating policies, procedures, and problems of multinational companies; developing executives for international business.

261-62 Managerial Economics (3-3)

(Formerly Business Economics I and II)

Managerial applications of economic analysis. Utilizing economic theory and statistics in business decisions involving profits, prices, production, investments, and inventories; and in business forecasting. Prerequisite: Business and Public Administration 203, Economics 217-18, and Statistics 111, 112; or equivalent; or consent of instructor.

280 Procurement and Contracting (3)

(Formerly Business Administration 250)

Survey and overview of procurement and contracting practices and procedures in government and industry.

281 Purchasing Principles and Practices (3)

Industrial purchasing practices and principles. Organization and functions of the purchasing department. Types of purchase agreements, source selection, competition and negotiation, policies and ethics.

282 Government Contract Administration (3)

Surveillance over performance of contract. Rights and obligations: changes, suspension of work, default, termination for the convenience of the government, inspection, warranties, procedures for the settlement of controversies on government contracts.

283 Pricing and Negotiation (3)

Collecting and evaluating data for pricing purposes. Negotiating profits. Weighted guidelines and other attempts at formalizing the profit computation. Negotiation procedures and techniques.

284 Procurement Data Management (3)

Technical data and the procurement process, contract work statements, performance specifications, detailed design drawings, "or equal" purchase descriptions and other types of work statement. The impact of government policies on work statement preparation. Control of contract performance by configuration control and base line management systems. Proprietary data.

285 Systems Procurement and Project Management (3)

Development and procurement of major systems. Project management and the impact of this technique on the procurement process. Procurement planning—from concept formulation through contract definition, development, and manufacture.

291 Seminar: Business Management (3)

Research on various phases of management as practiced in American industry.

293 Business Research (3)

May be repeated once for credit.

296 Seminar: Controllorship (3)

Advanced problems of financial management.

297 Case Studies in Business Administration (2 or 3)

Cases covering the whole range of business activity. Analysis of operational situations and policy issues. Developing and implementing solutions to managerial problems.

299 Thesis Seminar (3)

Examination of thesis standards, research philosophy and methodology.

300 Thesis Research (3)**Business and Public Administration***

Chairman: H.R. Page, Associate Professor of Business Administration; Government 201, Telephone: 676-6115

201 Advanced Administrative Management (3)

Advanced course in administration emphasizing principles and practices common to administrative units of all kinds.

203 Mathematics for Management (3)

Mathematical concepts employed in the solution of management problems. Applications of analytical geometry, functions, elements of calculus, and linear algebra to optimization problems. Prerequisite: high school algebra.

204 Quantitative Factors in Administration (3)

Survey of quantitative techniques used in the solution of management problems. Potentials and limitations of mathematical models and proper

* Administered by the Department of Business Administration.

areas for their application. Topics include probability, statistical decision theory, linear programming, waiting line, inventory replacement models. Prerequisite: Business and Public Administration 203 or equivalent.

207 Human Behavior in Organizations (3)

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications emphasized.

208 Current Issues in Organizational Behavior (3)

Study of behavioral factors relating to issues such as automation, ethics, labor-management relations, and similar problems. Problems in behavioral science research. Prerequisite: Business and Public Administration 207.

211 Leadership and Executive Performance (3)

Theories of managerial leadership; issues and problems associated with leadership in large organizations and at higher management levels: executive selection and development. Prerequisite: Business and Public Administration 201 or permission of instructor.

218 Survey of Data Processing (3)

Fundamentals of automatic data processing; manual, punched card, and electronic data processing principles and procedures; basic machine language and advanced language programming techniques; phases of data systems development; role of the manager in management information systems. Emphasis on proper use of data processing as another tool of management.

219 Digital Computer Programming Concepts (3)

Programming concepts, techniques, and practices; FORTRAN and COBOL; address modifications, indexing, sub-routines, sub-programs, table look-up, machine functions, data representation, instruction formatting, and programming systems; government and business oriented problems. Student programs are run on the University 360 computer. Students will not become programmers, but will understand the use of programming in management information systems. Prerequisite: Business and Public Administration 218 or permission of instructor.

220 Comparative Digital Computer Systems and Their Management (3)

Characteristics and capacities of the range of data processing equipment in use today, special purpose equipment in business and government, recent and prospective equipment developments. Fundamentals of data processing installation design and management. Prerequisite: Business and Public Administration 218 or 219, or permission of instructor.

221 Management Information Systems Development and Application (3)

Development of management information systems, integration of data processing in operations of government or business, impact on management organization and decision making. Case studies. Prerequisite: Business and Public Administration 218 or 219, or permission of instructor.

222 Seminar: Advanced Digital Computer Concepts (3)

Advanced problems in the design and application of computer systems. Admission by permission of instructor.

223 Management of a Data Processing Organization (3)

Organization and management of data processing function in business and government; study of types of resources required: planning, scheduling, and production of data processing workloads; performance standards; evaluation criteria. Prerequisite: Business and Public Administration 218 and either 219 or 220; or permission of instructor.

225-26 Statistics and Probability as Applied to Management Problems (3-3)

Probability and random variables, discrete and continuous distributions of one variable, sampling theory, estimation and hypothesis testing, statistical decision theory and revision of probabilities in decision making. Applications in business and government including waiting line theory, reliability, and replacement models.

227 Mathematical Programming: Techniques and Applications (3)

Technical and management considerations of linear and nonlinear programming. Mathematical and computational aspects of linear programming. Formulation of linear programming models. Studies of applications of linear programming. Introduction to theory and application of nonlinear programming. Prerequisite: Business and Public Administration 203.

228 Systems Analysis by Simulation (3)

(Formerly Applications of Operations Research)

Methods of systems analysis via computer simulation. Particular attention to inventory models, although queueing systems and management planning models are also covered. Prerequisite: Business and Public Administration 225-26.

263 Organization and Management (3)

Contemporary management theory; emphasis on application of management concepts in organizational practice. Comparative studies of current organizational designs and management processes. Prerequisite: Business and Public Administration 201, 204, 207.

268 Management Engineering (3)

Analysis of the techniques for initiation and implementation of management engineering programs; emphasis on organization and methods surveys including the study of work measurement, work simplification, management audits, and other management improvement programs. Not open to students who have taken former Business and Public Administration 269.

***280-81 Managerial Aspects of National Security (3 or 4-3 or 4-3)
-82**

The application of business management principles to the military aspects of national security; organization and administration of the Federal Government for national defense; management of national resources (natural, human, energy, economic); budgeting and controllership; determination of requirements; procurement; production; supply management; and communications.

* Available only to students in the Master of Science in Business Administration program at the Industrial College of the Armed Forces.

287 Relations of Government to Business (3)

Activities of government in relation to business management in areas of labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy.

295 Research Methods (3)

Research techniques, sources of information, array and analysis of data, interpretation and presentation of the findings.

Chemistry

Chairman: C.R. Naeser, Professor of Chemistry; Samson 201, Telephone: 676-6120

3-4 Fundamentals of Physical Science (4-4) (Campus Course)

A year course: credit toward a degree at this University given on completion of Chemistry 4. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester.

11-12 General Chemistry (4-4) (Campus Course)

A year course: credit toward a degree at this University given on completion of Chemistry 12. Lecture (3 hours), laboratory (3 hours), recitation (1 hour). Elementary course in general chemistry, including qualitative analysis. Prerequisite: one year of high school algebra. Laboratory fee, \$18 a semester.

Chinese (Mandarin)

Teacher: Chung-wen Shih, Associate Professor of Chinese; Maury 41, Telephone: 676-7106.

1-2 First-year Chinese (3-3) (Campus Course)

A year course: credit toward a degree at this University given on completion of Chinese 2. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester.

3-4 Second-year Chinese (3-3) (Campus Course)

A year course: credit toward a degree at this University given on completion of Chinese 4. Continuation of grammar and spoken Chinese, more emphasis on the written language, reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a semester. Prerequisite: Chinese 1-2 or equivalent.

Economics

Chairman: C.E. Galbreath, Professor of International Economics; Monroe 401, Telephone: 676-6150

Departmental prerequisite: Economics 1-2 is prerequisite to all other courses in Economics.

1-2 Principles of Economics (3-3)

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2.

121 Money and Banking (3)

Nature of money, credit, commercial banking, and other financial institutions in the U.S. monetary system.

122 Monetary Theory and Policy (3)

(Formerly Money and Banking)

Analysis of role of money in economic activity in terms of supply of and demand for loanable funds, determination of interest rates and price level. Problems of U.S. monetary policy. Prerequisite: Economics 121.

181-82 International Economics (3-3)

First half: fundamentals of the monetary theory and pure theory of international trade. *Second half:* analysis of major contemporary problems including balance of payments, international liquidity, and economic development.

217-18 Survey of Economics (2 or 3-3)

For graduate students in fields other than economics. *First half:* price theory. *Second half:* income and employment theory. Not open to graduate students in economics.

251-52 Economic Development (3-3)

Theories and problems of economic growth; special attention to the underdeveloped countries.

Education

Chairman: B.S. Root, Professor of Education; Stuart 300, Telephone: 676-6160

Departmental prerequisite: a degree from an accredited institution is prerequisite to courses in Education numbered from 201 to 400.

108 Human Development, Learning, and Teaching (3)

Lecture (2 hours), conference (1 hour), field work (3 hours). Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22.

112 Educational Measurement (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123.

- 113 Elementary School Art (3)**
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Material fee, \$5.
- 114 Elementary School Music (3)**
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22.
- 115 Elementary School Teaching of Reading (3)**
Introduction to methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123, or teaching experience.
- 116 Elementary School Social Studies (3)**
Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.
- 117 Elementary School Science (3)**
Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.
- 120 Elementary School Mathematics (3)**
Content, methods, materials, concepts of "new mathematics," and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.
- 123 Society and the School (3)**
Lecture (2 hours), conference (1 hour), field work (2 hours). Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel.
- 128 Children's Literature (3)**
Newer books for children and the children's classics, contribution of literature to child development, children's original expressions.
- 138 Teaching Social Studies in Secondary Schools (3)**
Prerequisite: 24 semester hours of social studies.
- 146 Teaching Foreign Languages (3)**
Prerequisite: 18 semester hours of one foreign language.
- 147 Foreign Language Instruction in the Elementary School (2)**
Methods, materials, and activities essential in teaching foreign languages in the elementary school.
- 205-6 The Curriculum (3-3)**
For experienced teachers. *First half:* curriculum foundations and issues; comparison of curriculum patterns. *Second half:* curriculum development in subject areas; group consideration of student problems.

Prerequisite to Education 138, 146, and 147: Education 108, 123, and 131, or adequate experience.
Prerequisite: adequate professional preparation.

***207 Curriculum Materials (3 to 6)**

For experienced teachers. Construction of courses of study and classroom teaching aids, with direct application to students' situations.

208 Human Development (3)

Contribution of various disciplines to an understanding of human development throughout the life span; emphasis on practical implications of relevant research.

209 Child Development (3)

Interdisciplinary approach to child development. Analysis, interpretation, and practical implications for instruction of research in disciplines contributing to a knowledge of child development.

212 Educational Measurement (3)

Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory use of test instruments.

213-14 History of Education (3-3)

First half: European backgrounds of American education. *Second half:* evolution of the American school system.

***216 Education of Slow-learning Children (3)**

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties.

***217-18 Philosophy of Education (3-3)**

First half: to help students formulate a personal philosophy of education. *Second half:* social foundations of education—forces that shape policies and offerings of the school.

***219 Elementary School Classroom Procedures (3)**

Current classroom practices; emphasis on planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences.

***223-24 Reading Problems (3-3)**

Elementary and secondary school reading difficulties; classroom and clinical techniques in solving reading problems. Prerequisite: one or more years of recent teaching experience.

227 Basic Issues in Elementary Education (3)

Identification, definition, and analysis of some of the most important problems facing the contemporary American elementary school.

228 Instructional Areas in Elementary Education (3)

Objectives, organization, content, and teaching methods in language arts, arithmetic, social studies, science, arts and crafts, health and physical education.

***229 Administration of Elementary Education (3)**

For experienced teachers and administrators. Achieving instructional objectives, organizing and servicing teaching activities, coordinating school and community life.

***231 Secondary School Classroom Procedures (3)**

Current classroom practices: teacher-pupil planning, group procedures, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature.

***241 Education of the Gifted (3)**

For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects.

***243 Human Relations in the Classroom (3)**

Principles and practices involved in interpersonal relationships between learner and teacher and among learners.

245 School and Community (3)

The school as an important member of a team of social agencies that builds the community.

***251 Foundations of Guidance and Personnel Services (3)**

Introductory survey: definitions, scope, principles, historical background, organization, services, emerging trends, and issues.

252 Organization and Administration of Guidance Services (3)

For guidance directors, supervisors, and experienced school counselors who hope to qualify for such positions. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance.

253 Analysis of the Individual for Purposes of Counseling (3)

Detailed study of individual analysis and appraisal techniques. Development of systematic case study. Prerequisite: Education 112 or equivalent.

***254 The Junior High School (3)**

Purposes, organization, core program, guidance, developing course of study, extra-classroom activities.

257 Educational and Occupational Development (3)

Theories of career development; structure of education, training, and work in the United States; sources, forms, collection, evaluation, and dissemination of educational-occupational information.

258 Techniques of Counseling (3)

Intensive study of educational and psychological processes involved in counseling interviews. Vocational, educational, and personal counseling problems. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258.

Prerequisite: adequate professional preparation.

***260 Secondary School Supervision (3)**

For experienced teachers and administrators with two or more years of teaching experience. Review of modern supervisory concepts including practices followed in the operation of the school.

***261 Practicum in Guidance (3 to 6)**

Supervised practical instruction. Prerequisite: graduate work in counseling. Admission by permission of Department Chairman.

263-64 Employee Training (3-3)

First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. *Second half:* administrative problems and practices, training media, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training.

265 Teaching Secondary School English—Materials, Resources, Content (3)

For experienced teachers. Review of curriculum patterns. Discussion of current and new approaches to course content. Offered in cooperation with the D.C. Public Schools.

267 Teaching Secondary School Social Studies—Materials, Resources, Content (3)

For experienced teachers. Review of curriculum patterns. Discussion of current and new approaches to course content. Offered in cooperation with the D.C. Public Schools.

***271 The Teacher and School Administration (3)**

Role of federal, state, and local administrative units; school finance; legal controls; school plant; public support; improving teaching conditions.

***272 The Teacher and School Supervision (3)**

Nature, organization, human relationships, and techniques.

***275 School Finance (3)**

Educational financial theory, practice, and control, including methods of financing.

***276 Seminar: Public Relations in School Administration (3)**

Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making.

***278 School Law (3)**

Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group.

***285 Student Activities (3)**

Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation.

* Prerequisite: adequate professional preparation.

English

Chairman: J.P. Reesing, Jr., Professor of English Literature; Stuart 410, Telephone: 66180

Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skill. Those students who show marked superiority may, upon passing further tests, be exempted from one or both halves of the English Composition course; those who are inadequately prepared for English 1 will be assigned to *Basic English*. In lieu of *Basic English*, campus students may, if they desire, be given permission to register for English 1 on campus. English 1 or 1x is prerequisite to all other courses in English.

ENGLISH COMPOSITION

X Basic English (0)

Instruction, drill, and exercises in grammar, vocabulary, spelling, and mechanics in general; instruction and exercises in composition and reading. This course is designed to prepare students for English 1. No academic credit. Tuition fee, \$88.

1 English Composition (3)

Analysis and practice of expository techniques with emphasis on unity, development, and organization; library research procedure.

1x English Composition (3) (Campus Course)

Intensive course in English grammar and composition for students inadequately prepared for English 1. Begins with detailed instruction, drill, and exercises in basic structure of the English language and in writing paragraphs; continues with content of English 1. English 1x meets five hours a week and carries 3 semester hours of credit. Total fee, \$205 (tuition fee of \$180 plus additional fee of \$25).

2 English Composition (3)

Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1x.

11 The Writing of Reports (3)

Theory and practice in the writing of technical reports. Prerequisite: English 1 or 1x and 2.

WORLD LITERATURE

41-42 Introduction to World Literature (3-3)

First half: a survey of Western literary heritage from Homer to Milton.
Second half: a review of Western literature from the English metaphysical poets to the present.

ENGLISH LITERATURE

51-52 Introduction to English Literature (3-3)

Historical survey. Prerequisite: English 1 or 1x.

61-62 Introduction to European Literature (3-3)

Consideration of various types. Prerequisite: English 1 or 1x.

135-36 Shakespeare (3-3)

AMERICAN LITERATURE

71-72 Introduction to American Literature (3-3)

Historical survey. *First half*: from the beginnings to the Civil War. *Second half*: from the Civil War to present. Prerequisite: English 1 or 1x.

French*

Chairman: J.A. Frey, Associate Professor of Romance Languages; A-11, Telephone: 676-6330

1-2 First-year French (3-3)

A year course: credit toward a degree at this University given on completion of French 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose.

3-4 Second-year French (3-3)

A year course: credit toward a degree at this University given on completion of French 4. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Prerequisite: French 1-2, or two years of high school French.

51-52 Survey of French Literature and Civilization (3-3)

Social, artistic, and cultural background of French literature. Lectures, readings, recitations, and informal discussions.

Geodetic and Cartographic Science

Program Adviser: Hyman Orlin, Professorial Lecturer in Mathematics; Telephone: 496-8720

1-2 Introduction to Cartography (3-3)

The use of maps. History of mapping. Introduction to the fundamental concepts of topography, hydrography, and cartography. Characteristics and uses of different kinds of maps and charts, symbolization, representation of relief, geographic and grid coordinates, attributes of various projections, reliability. Making maps. Fundamental concepts of geodesy and geomorphology as applied to maps and charts, surveying methods, application to aerial photography, photo interpretation, map design, compilation and reproduction.

12 Plane Surveying (3)

Theory and practice in measurement of distances, angles, and elevations; traversing, leveling, and triangulation; stadia surveying, plane coordinate computations, and miscellaneous surveying problems. Prerequisite: Mathematics 6 or equivalent.

* Administered by the Department of Romance Languages and Literatures.

13 Geodetic Surveying (3)

Elements of geodetic and hydrographic surveys; electronic measurements, triangulation, trilateration, and precise traverses; geodetic leveling and precise trigonometric leveling; introduction to geodetic astronomy and to least squares adjustment. Prerequisite: Geodetic and Cartographic Science 12, Mathematics 21.

17 Elementary Photogrammetry (3)

Fundamentals of aerial photography, photogrammetric optics and photographic processes; mathematics of vertical and tilted photographs; stereoscopy and parallax; planning and executing the photogrammetric project; radial triangulation methods; photomaps; oblique and terrestrial photography. Prerequisite: Geodetic and Cartographic Science 2, 12.

18 Intermediate Photogrammetry (3)

Basic photogrammetry theory and practice. Stereoscopic plotting instruments; graphical and computational methods for adjusting strips of aerotriangulation; electronic computers. Method of least squares applied to photogrammetry. Prerequisite: Geodetic and Cartographic Science 17, Mathematics 21.

105 Elementary Geophysics (3)

Introduction to geophysics; origin of the earth, geochronology, seismology, gravity, and geomagnetism. Prerequisite: Geology 1 or 3, Mathematics 22.

106 Interpretation Theory—Geophysics (3)

Development of mathematical and physical foundations for interpreting seismic, gravimetric, and magnetic data. Prerequisite: Geodetic and Cartographic Science 105, Oceanography 102, Mathematics 24.

107 Geomorphology (3)

Development of geomorphic concepts; the earth's crust, weathering, climate, and denudation; stream, shore, wind, and ice processes; glaciation; physiographic regions. Prerequisite: Geodetic and Cartographic Science 2.

108 Climatology (3)

Introduction; causes for climate and weather, air mass movements, water mass movements, physical features of boundaries. Tropics, subtropics, humid and dry continentals, subarctics. Prerequisite: Geodetic and Cartographic Science 107.

110 Map Projections (3)

Mathematics of projections; geometry of sphere and ellipsoid; distortions; conic, cylindrical, and azimuthal projections; geodetic projections. Prerequisite: Geodetic and Cartographic Science 2, 12; Mathematics 24.

111 Cartographic Techniques (3)

Modern cartographic techniques as applied to maps and charts. Map compilation, color separation scribing for preparing map manuscripts for multicolor printing, scribing instruments and procedures, map editing, cartography for photo-image maps and map substitute products, aviation and aerospace cartography. Prerequisite: Geodetic and Cartographic Science 2, Chemistry 12.

112 Advanced Cartography (3)

Recent cartographic practices. Prerequisite: Geodetic and Cartographic Science 111.

117 Advanced Photogrammetry (3)

Analytic photogrammetry. Prerequisite: Geodetic and Cartographic Science 18, Mathematics 24.

155 Elementary Geodesy (3)

Principles and formulas basic to theoretical and applied geodesy, with application to special problems; computations on an ellipsoid, gravimetry, deflection of the vertical and Laplace's equation, introduction to satellite geodesy. Prerequisite: Geodetic and Cartographic Science 13, Mathematics 23, Physics 30.

156 Geodetic Astronomy (3)

Principles and formulas for the astronomic determination of longitude, time, azimuth, and latitude; star catalogues; observing and time recording instruments; practice in observing and computation. Prerequisite: Geodetic and Cartographic Science 155.

160 Mathematics of Adjustments and Least Squares (3)

Types and distribution of errors, Gaussian and Poisson distributions, fundamentals of matrix algebra with special emphasis on least squares adjustment of geodetic networks. Prerequisite: Geodetic and Cartographic Science 155, Mathematics 111.

161 Adjustments in Geodesy and Photogrammetry (3)

Advanced adjustment theory. Prerequisite: Geodetic and Cartographic Science 160.

Geography and Regional Science

Chairman: M.F. Gordon, Associate Professor of Geography and Regional Science; I-200, Telephone: 676-6185

51 Introduction to Geography (3)

Interrelated processes affecting the character of landforms, hydrography, soils, vegetation, and climate; relevance of their world patterns to man.

52 World Regions (3)

Survey of major countries, synthesis and analysis of major world regions.

125 Transportation Complexes (3)

World communications and transportation systems, interrelations between transportation and areal organization of man's activities.

126 World Economic Geography (3)

World patterns and processes underlying the areal structure of selected economic activities.

127 World Population and Settlement (3)

Patterns of world population; factors contributing to population pressures, growth, and migrations.

146 World Political Geography (3)

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration.

151 United States and Canada (3)**153 Europe (3)*****155 Africa (3)*****161 Latin America (3)*****165 Asia (3)*****166 Soviet Union (3)****168 Arctic Regions (3)**

Human and physical aspects of the Arctic regions with respect to natural environment and potential resources, present state of development and special problems encountered. Given in cooperation with the Arctic Institute of North America.

Geology

Chairman: Geza Teleki, Professor of Geology; Bell 3, Telephone: 676-6190

1-2 Introductory Geology (3-3) (Campus Course)

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Survey covering the principles of geology. Laboratory fee, \$10 a semester.

3 Introductory Geology (3)

Survey covering the principles of geology. Nonlaboratory course for off-campus students only.

4 Introductory Geology (3)

Geological periods, evolution of life on earth. Nonlaboratory course for off-campus students only. Prerequisite: Geology 1 or 3, or permission of instructor.

125 Marine Geology (3)

Lecture and map work. Principles of oceanography and submarine geology: geology of the deep sea; topography, crustal structure, sedimentary processes, and marine environment. Prerequisite for geology majors: Geology 1-2; for students in fields other than geology, permission of instructor.

Regional survey. Prerequisite: Geography 51.

141 Introductory Geochemistry (3) (Campus Course)

Lecture (2 hours), laboratory as arranged. Principles and theories on the abundance, relationships, and distribution of the elements in various rock and mineral species. Prerequisite: Geology 115 or equivalent; Chemistry 11-12; Mathematics 21; Physics 1, 2. Laboratory fee, \$12.

Germanic Languages and Literatures

Chairman: L.G. Seeger, Associate Professor of German; Rice 408, Telephone 676-6195

1-2 First year German (3-3)

A year course: credit toward a degree at this University given on completion of German 2. Essentials of German grammar; translation of easy prose.

3-4 Second-year German (3-3)

A year course: credit toward a degree at this University given on completion of German 4. Selections from modern German prose; continuation and review of grammar. Prerequisite: German 1-2 or two years of high school German.

9-10 German Conversation and Composition (3-3)**51-52 Introduction to German Literature (3-3)**

Prerequisite: German 4 or equivalent.

Health Care Administration

Chairman: Leon Gintzig, Professor of Hospital Administration; CC-11, Telephone: 676-6220

153-54 Survey of Health Care Organization and Procedures (3-3)

Primarily for students who wish an over-all knowledge of organization and procedures used in health care policies, hospitals, and long-term care facilities. Not open to Master's candidates in Health Care Administration.

209 Health Care Economics and Financial Management (3)
(Formerly *Health Care Economics*)

Lecture (2 hours), laboratory (2 hours). Economic and financial analysis of the interactions between consumers of health care, providers of health care, and public and private prepayment and insurance programs. Industry price structure and the long- and short-term capital requirement of health care institutions.

250 Administration for Mental Care (3)

Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, mental health clinics, and others.

History

Chairman: R.P. Sharkey, Professor of Economic History; Stuart 416, Telephone: 676-6230

Departmental prerequisite: History 39-40 or 91-92 is prerequisite to courses 108 through 158 and 187 through 196; History 71-72, to courses 167 through 184; either History 39-40, 71-72, or 91-92, to courses 162 through 166. Prerequisite to History 105-6 is either History 39-40, 91-92, or a background in a science.

39-40 European Civilization in Its World Context (3-3)

Primarily for freshmen. *First half:* political, social, economic, and cultural history from ancient times to early modern era. *Second half:* from early modern era to present. Students cannot receive credit for both History 39-40 and 91-92.

71-72 Civilization of the United States (3-3)

Primarily for sophomores. *First half:* political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half:* from 1865 to present.

91-92 World Civilizations (3-3)

First half: major civilizations of the world to 1500. *Second half:* Eurocentric and world civilization since 1500. Students cannot receive credit for both History 39-40 and 91-92.

145-46 History of Russia (3-3)

Rise and revolution of Russia. *First half:* the Old Regime, 860-1881. *Second half:* Revolution and Soviet rule, since 1881.

149-50 European Diplomatic History (3-3)

The European state system; diplomatic practices and relations since the Congress of Vienna; emphasis on policies and actions of the great powers and their statesmen. *First half:* to 1890. *Second half:* since 1890. Students cannot receive credit for both History 150 and 157.

163-64 History of Latin America (3-3)

Political, social, and cultural development. *First half:* through independence. *Second half:* the national period.

*179-80 U.S. Economic History (3-3)

Process of economic growth from Colonial times to the present. Development of various sectors in the economy—such as agriculture, transportation, manufacturing, and banking—and their interdependence. *First half:* 1607-1865. *Second half:* 1865 to present.

181-82 U.S. Diplomatic History (3-3)

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; activities of American secretaries of state and diplomatic agents. *First half:* to 1898. *Second half:* since 1898.

* An interdepartmental course offered by the departments of History and Economics. Students may register in either department.

195-96 History of East Asia (3-3)

Civilizations of China and Japan: emphasis on cultural development and social organization. *First half:* beginnings to about 1800. *Second half:* traditional societies on the eve of the modern era, their responses to Western cultural influences since mid-19th century.

245-46 Research Seminar: Russia and Europe (3-3)

Prerequisite: History 145-46 or equivalent.

281-82 Research Seminar: U.S. Diplomatic History (3-3)

Prerequisite: History 181-82 or equivalent.

Humanities

Faculty Adviser: J.H. Coberly, Professor of American Literature; Stuart 405, Telephone: 676-6630

1-2 Humanities in the Modern World (3-3)

Interdisciplinary study of modern Western thought from the Renaissance to the 20th century. Reading and intensive class discussion of five works each semester from the following authors: Machiavelli, Pope, Voltaire, Rousseau, Goethe, Tolstoy, J.S. Mill, Zola, Nietzsche, Kierkegaard, Freud, Kafka, Koestler, T.S. Eliot. Background lectures on the major intellectual, artistic, economic, and social movements.

3-4 Classical Humanities (3-3)

Interdisciplinary study of the thought of Greece and Rome. Reading and intensive class discussion of five works each semester from the following authors: Homer, Hesiod, Aristophanes, Plato, Aristotle, Aeschylus, Euripides, Sophocles, Herodotus, Thucydides, Lucretius, Marcus Aurelius, Epictetus, Polybius, St. Augustine. Background lectures on the major intellectual, artistic, economic, and social movements.

International Affairs*

Faculty Adviser: H.M. Stout, Professor of International Affairs; Building T, 1st floor, Telephone: 676-6240

International Affairs 256, 260, 261, 262, 263, 287, 297, and 299-300 are offered only in the War Colleges' curricula.

99-100 Research (3-3)

160 Insurgency: Communist Doctrine and Its Application (3)

161 Internal Security: the Response to the Communist Insurgency (3)

162 Totalitarian Control over Populations (3)

256 Diplomacy Between the World Wars (3)

* Administered by the School of Public and International Affairs.

- 260 Fundamentals of National Power (3)
- 261 International and U.S. Foreign Policy (3)
- 262 National Security Policy of the United States (3)
- 263 Intercultural Relations (3)
- 287 Power Politics in the Pacific (3)
- 297 Readings in International Affairs (1, 2, or 3)
- 299-300 Thesis Research (3-3)

Italian*

Chairman: J.A. Frey, Associate Professor of Romance Languages; A-11, Telephone: 676-6330

1-2 First-year Italian (3-3)

A year course: credit toward a degree at this University given on completion of Italian 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose.

3-4 Second-year Italian (3-3)

A year course: credit toward a degree at this University given on completion of Italian 4. Conversation, grammar, composition, reading in modern Italian prose, introduction to Italian civilization. Prerequisite: Italian 1-2 or two years of high school Italian.

51-52 Introduction to Italian Literature (3-3)

Prerequisite: Italian 4 or equivalent.

Latin American Civilization—Special Program

Program Director: R.C. Burns; Building E, Telephone: 676-7049

Faculty Consultants: C.E. Galbreath, Professor of International Economics; M.F. Gordon, Associate Professor of Geography and Regional Science; W.H. Kraus, Professor of Political Science; J.W. Robb, Professor of Romance Languages; Mario Rodriguez, Professor of Latin American History; H.M. Stout, Professor of International Affairs

101 Latin American Civilization (3)

A three-week, University-conducted study program in a selected area in Latin America, effecting a broad synthesis of history, politics, economy, geography, language, and literature in order to achieve an understanding of contemporary problems and assess national attitudes in the light of world relations. On-the-spot seminars, guest lectures at universities, instructional visits to government offices, first-hand observation of each country and the operation of its economy, comparisons and contrasts among the countries of the area. May be repeated for credit.

Administered by the Department of Romance Languages and Literatures.

Mathematics

Chairman: Hewitt Kenyon, Professor of Mathematics; Monroe 422, Telephone: 676-6235

No Mathematics courses numbered from 1 to 100 are available for college credit if the student's previous training in mathematics meets the prerequisite for a higher numbered course.

Graduate credit may not be given for Mathematics courses numbered from 101 to 200 without the permission of the Chairman of the Department.

Departmental prerequisite: Mathematics 24 is prerequisite to courses in Mathematics numbered from 101 to 200. Exception to this regulation may be made for Mathematics 101, 122, and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

3 College Algebra (3)

Equivalent to second-year high school algebra. Prerequisite: one year each of high school algebra and high school geometry.

6 Plane Trigonometry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor).

9 General Mathematics I (3)

For students electing Mathematics 9 and 10 as a terminal sequence. Numerals and numbers, number bases, mathematical systems, sets, propositional logic and truth values. Prerequisite: two years of high school mathematics.

10 General Mathematics II (3)

Number systems, Euclidean and non-Euclidean geometry, graphs, functions, introduction to analytic geometry. Prerequisite: Mathematics 9.

15 Finite Mathematics I (3)

Introduction to logic, sets, and probability. Prerequisite: two years of high school mathematics.

16 Finite Mathematics II (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15.

21 Calculus I (3)

Elementary concepts of analytic geometry. Differentiation of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or equivalent.

22 Calculus II (3)

Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21.

23 Calculus III (3)

Techniques of integration, vector concepts, improper integrals, polar coordinates, infinite series. Prerequisite: Mathematics 22.

24 Calculus IV (3)

Solid geometry, multiple integration and partial differentiation with applications, line and surface integrals, differential equations. Prerequisite: Mathematics 23; with departmental permission, students may register concurrently in Mathematics 23 and 24.

111 Mathematics for Engineers and Physicists I (3)

Differential equations, linear algebra.

112 Mathematics for Engineers and Physicists II (3)

Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111.

124 Introduction to Matrix Theory (3)

Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices.

134 Introduction to Boundary Value Problems (3)

Prerequisite: Mathematics 111 or 142.

139 Advanced Calculus I (3)

Review and extension of elementary one-variable calculus, emphasis on the theoretical foundations. Prerequisite: Mathematics 24 or equivalent.

140 Advanced Calculus II (3)

Calculus of several variables. Prerequisite: Mathematics 139 or equivalent.

153 Introduction to Numerical Analysis (3)**171 Vector Analysis (3)****Oceanography***

Program Adviser: Hyman Orlin, Professorial Lecturer in Mathematics; Telephone: 496-8720

101-2 Elementary Oceanography (3-3)

Chemical and physical properties and composition of sea water, heat budget, distribution of variables, statics, dynamics, water masses, general circulation of the oceans, underwater sound, propagation of light, submarine topography, sea floor deposits, biological classifications, and marine ecology. Spectrum of ocean waves from capillary through tidal, including internal waves. Observations and reduction; history and interrelationships between marine sciences. Prerequisite to Oceanography 101: Mathematics 21, Physics 1. Prerequisite to Oceanography 102: Geology 1 or 3.

110 Ocean Dynamics (3)

All aspects of physical oceanography except waves and tides. Subjects of physical and chemical properties of sea water, underwater sound, and propagation of light. Emphasis on hydrodynamic equations, statics and

* Affiliated with the Department of Mathematics.

kinematics, currents, heat budget, turbulence, and the general circulation and water masses of oceans. Prerequisite: Mathematics 22, Oceanography 101.

111 Ocean Waves and Tides (3)

All aspects of waves and tides; survey of tidal theory and analysis. Prerequisite: Mathematics 24, Oceanography 102.

112 Biological Oceanography (3)

Biological science as related to marine environment. Prerequisite: Oceanography 102.

113 Marine Seismology (3)

Principles of geophysical measurements and interpretation, earthquake seismology, sound propagation, seismic refraction, and reflection at sea. Elastic wave propagation considerations in liquid and solid media. Sound transmission with special application to SOFAR channel studies. Selected reflection and refraction studies offshore; geophysical investigations of some selected trenches. Instruments, i.e., Precision Depth Recorder (PDR), etc. A description of the specialties in the discipline of earthquake seismology and their application in furthering knowledge of the earth's interior. Prerequisite: Physics 1, Geodetic and Cartographic Science 105; or permission of instructor.

Pharmacology

Chairman: H.G. Mandel, Professor of Pharmacology; School of Medicine, Telephone: 331-6541

110 Pharmacology of Anesthesia (3)

Lectures and conferences concerning the physiological and pharmacological principles of clinical anesthesia, on the theoretical basis for the use of pharmacological agents.

Philosophy

Chairman: R.H. Schlagel, Rice 602, Professor of Philosophy; N-30, Telephone: 676-6266

51-52 Introduction to Philosophy (3-3)

Problems of modern philosophy in relation to scientific and social developments since the Renaissance. *First half:* theories of knowledge. *Second half:* theories of reality. Philosophy 51 or 52 may be taken independently.

Physical Education

Chairman for men: V.J. DeAngelis, Professor of Physical Education for Men: S-11, Telephone: 676-6250

Chairman for women: Loretta Stallings, Professor of Physical Education for Women: K-20, Telephone: 676-6280

*5 Physical Education Activities (1) (men)

(Replaces former Physical Education for Men 1, 2, 11, and 12)

Two periods of supervised activity a week. May be repeated for credit not to exceed 4 semester hours.

*6 Physical Education Activities (1) (women)

(Replaces former Physical Education for Women 1, 2, 11, and 12)

Classes for first-year students meet three periods a week in activities recommended on the basis of the physical education placement test; classes for second-year students meet two periods a week and are chosen from the activities offered each semester. May be repeated for credit not to exceed 4 semester hours.

101 Physical Education in the Elementary School (3)

For physical education majors and teaching specialists. Philosophy; age characteristics and their implications for the organization of school and playground programs; curriculum, techniques of teaching, evaluation, integration of subject-matter areas.

Physics

Chairman: H.H. Hobbs, Professor of Physics: Samson 201, Telephone: 676-6275

Departmental prerequisite: Physics 31-32 or equivalent, and consent of a departmental adviser, are prerequisite to all courses in Physics numbered from 101 to 200.

1 General Physics (4) (Campus Course)

Topics in classical physics which form a foundation for modern physics.

Prerequisite: two years of college preparatory mathematics or concurrent registration for Mathematics 6. Laboratory fee, \$11.

2 General Physics (4) (Campus Course)

Electricity, magnetism, and selected topics from modern physics. Prerequisite: Physics 1 or equivalent. Laboratory fee, \$11.

9-10 Introduction to Astronomy (3-3) (Campus Course)

Laboratory fee, \$11 a semester.

* A Physical Education fee of \$4.50 a semester is required for registration in one or more of the activity courses.

30 Introductory Modern Physics (4) (Campus Course)
(Formerly General Physics)

Introduction of concepts in modern physics and laboratory techniques necessary for the more advanced work in Physics 31 through 52. Prerequisite: Physics 1 or equivalent and one semester of calculus. Physics 1 may be waived on the basis of the College Entrance Examination Board Achievement Test or by a departmental examination prior to registration. Laboratory fee, \$11.

31-32 Introduction to Theoretical Physics (2-2) (Campus Course)

Theoretical structure of physics, emphasis on appropriate analytical techniques. Prerequisite: one year of calculus and Physics 30.

51-52 Introduction to Experimental Physics (2-2) (Campus Course)

Experiments and lectures on the basic phenomena of physics and techniques of experimentation. Prerequisite: Physics 2 or 30, and one year of calculus. Material fee, \$11 a semester.

161 Mechanics I (3) (Campus Course)

Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertia tensor, small vibrations, and elements of Lagrange's and Hamilton's equations.

162 Mechanics II (3) (Campus Course)

Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids.

163 Optics (3) (Campus Course)

Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion.

Political Science

Chairman: W.H. Kraus, Professor of Political Science; Government 403, Telephone: 676-6290

Departmental prerequisite: Political Science 5-6 is prerequisite to courses in Political Science numbered from 101 to 200.

5-6 Introduction to Political Science (3-3)

First half: structure, powers, and processes of the American political system—Congress, the President, and the Supreme Court; elections, political parties, and pressure groups; state and local government. *Second half:* nature and study of politics—theories, forms, and processes of political systems; international relations and political ideologies.

111 Comparative Government and Politics (3)

Introduction to the government and politics of the principal constitutional democracies of Western Europe: Great Britain, France, and the Federal Republic of Germany; secondary reference to other West European systems and the communist government of East Germany.

- *112 **Comparative Government and Politics (3)**
Introduction to the government and politics of the communist nations; emphasis on the Soviet Union and the countries of Eastern Europe.
- 121-22 **U.S. Constitutional Law and Politics (3-3)**
First half: separation of powers, federal-state relationships, economic regulation. *Second half:* political and civil rights.
- 145 **Political Parties and Politics (3)**
Organization and operation of political parties in the United States; party system and structure, role of ideology, voting behavior, campaigns and elections, devices for organizing the government.
- 146 **Political Pressures and Public Reactions (3)**
Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy.
- 151 **Public Administration (3)**
Theory and practice of governmental administration and its relation to other public and private organizations and interests; introduction to organization theory and behavior.
- 167 **U.S. Foreign Policy (3)**
Constitutional and political factors that determine the formulation, execution, and substance of U.S. foreign policy.
- 171 **International Politics (3)**
International actors, international and domestic environments of foreign policy, global and regional patterns, general characteristics of foreign policy.
- 172 **International Organization (3)**
Development and operations of the United Nations, regional organizations, and functional international organizations.
- 181-82 **Public International Law and Organization (3-3)**
Survey of the public law of nations. *First half:* emphasis on the law of peace. *Second half:* attention to neutrality and the so-called law of war.
- 190 **Politics of Middle and Southern Africa (3)**
Comparative analysis of the political systems of selected countries of non-Mediterranean Africa.
- 191 **Governments and Politics of the Middle East (3)**
Domestic and international politics of eastern Arab states, Turkey, Iran, and Israel.
- 192 **Governments and Politics of North Africa (3)**
Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, Sudan; their relations with states of the Middle East.
- 193 **Governments and Politics of South and Southeast Asia (3)**
Domestic and international politics of the major states in the area, particular reference to India.

* Political Science 112, 115, and 161 are related in their subject matter, and credit for only one of the three may be applied toward a degree.

194 Governments of China and Japan (3)

Institutions and processes of government of contemporary China and Japan, with some historical background. Attention to ideological forces. Students cannot receive credit for both Political Science 194 and 162.

***212 Seminar: Comparative Government and Politics (3)**

Selected topics in comparative political institutions and politics. Each semester is devoted to a selected country or significant institutional or policy problem. Attention is directed to questions of method.

***233 Seminar: Soviet Government and Politics (3)**

Research seminar in selected problems of Soviet domestic government and politics. Emphasis: since Stalin. Prerequisite: Political Science 229 or consent of instructor.

271-72 Problems in International Organizations (3-3)

First half: analysis of the political dimension of international organizations; special reference to the United Nations. *Second half:* examination of the operational and administrative aspects of international organizations; special reference to regional and functional bodies.

†283 Topics in International Law (3)

Consideration of theory, problems, and cases in the public law of nations including the law of peace and the law of war.

†285 Diplomacy since World War II (3)

Recent changes in diplomatic procedures and objectives as compared with those of earlier periods.

299-300 Thesis Research (3-3)

Psychology

Chairman: B.I. Levy, Professor of Psychology; Monroe 405, Telephone: 676-6320

Departmental prerequisite: Psychology 1 or 5-6 is prerequisite to all other courses in Psychology. Psychology 1 and 8, or 1 and 22, or 1 and 29, or 5-6 are prerequisite to Psychology courses numbered from 101 to 200.

1 General Psychology (3)

Fundamental principles underlying human behavior.

8 Psychology of Motivation and Personality (3)

Introduction to psychology of personality. Principles of motivation, personality development, social and cultural factors, and assessment and description of personality emphasized.

* May be repeated for credit with approval of adviser and consent of instructor.
† War Colleges' program only.

22 Introduction to Educational Psychology (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training.

29 Psychology of Childhood (3)

Genetic approach to study of the child. Emphasis on the socialization process, learning, and the child's view of the world.

101 Abnormal Psychology (3)

Causes, diagnosis, treatment, and prevention of various types of maladjustments and mental disorders. Prerequisite: 6 semester hours in psychology, or 3 in psychology and 6 in a biological science.

112 Psychology of Adolescence (3)

Psychological characteristics and problems peculiar to adolescence; emphasis on applications of psychology to solution of such problems.

121 Psychology of Learning (3)

Current learning theories and issues.

129 Motivational Factors in Personality (3)

Survey of basic principles and assessment techniques; emphasis on applications to counseling.

131 Psychological Tests (3)

Survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7.

144 Personnel and Industrial Psychology (3)

Psychological concepts and methods applied to problems of personnel management, human engineering, employee motivation, and productivity.

145 Psychology of Management (3)

Introduction to principles of industrial organizations and personnel selection. Departmental prerequisite waived.

151 Social Psychology (3)

Social foundations of attitudes and behavior: cognition, motivation, role-behavior, communication, small-group processes, racial attitudes, nationalism, and war.

Public Administration

Chairman: K.E. Stromsem, Professor of Public Administration; Government 201.
Telephone: 676-6295

199-200 Research (3-3)**213 Administration in Government (2 or 3)**

Critical analysis of federal administrative organizations as an integral part of the political system. Roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process; special attention to centripetal and centrifugal forces.

215 Comparative Administrative Systems (3)

Examination and analysis of the administrative systems of selected foreign governments; attention to practices applicable to administration in the United States.

217 Seminar: Developmental Administration (3)

Examination of theories of transfer of administrative capabilities from one country to another, factors relating to indigenous cultures, strategies of aid, examination of specific national and supranational programs.

221 Management in the Executive Branch (3)

Analysis of application of management theory and practice in the Executive Branch of the Federal Government; emphasis on staff responsibilities and relationships and internal organization and control.

223 Behavioral Factors in Large Organizations (3)

Analysis of the nature and characteristics of bureaucracy; dysfunctionism; approaches to policy guidance and leadership, particularly in large public organizations; influence and control systems.

231 Public Personnel Administration (3)

Survey of basic principles and functions of personnel administration in the public service; roles of personnel management; recruitment; placement; wage and salary administration; training; retirement, and other personnel functions.

232 Problems in Public Personnel Management (3)

Analysis and evaluation of major personnel management problems in government; employee-management relations; interagency and intergovernmental relationships. Impact of automation. Evaluation of personnel systems.

233 Seminar: Manpower Development and Utilization (3)

Analysis of manpower resources. Research projects and case studies in ways and means of increasing employee potential; use of training programs, executive development, incentive systems.

235 Technological Change and Manpower (3)

Research, discussion, and readings dealing with manpower problems arising from automation and other technological changes. Evaluation of these developments in government and business; their implications for productivity, employment, training and education, and personnel and industrial relations. Analysis of economic, political, and social factors influencing public and private industry manpower policies.

246 Urban Dynamics (3)

Forces that lie behind economic decisions which in turn determine the development of cities.

248 Financing Metropolitan Services (3)

Analysis of the structure and administration of public finance of local governments.

249 Administration in Metropolitan Area Governments I (3)

Examination of public administration at the local level. Developments and trends growing out of the changing urban pattern.

250 Administration in Metropolitan Area Governments II (3)

Examination of newly emerging political and social groups in metropolitan areas and their relations to governmental administration. Examination of federal programs in metropolitan areas. Prerequisite: Public Administration 249 or permission of instructor.

251 Governmental Budgeting (2 or 3)

Survey of the basic concepts, principles, and practices in governmental budgeting; interrelationship of planning, programming, and budgeting; their role in the management process.

252 Problems in Planning, Programming, and Budgeting (3)

Intensive analysis of developments in federal planning, programming, and budgeting; application of new tools in the decision-making process; evaluation of the systems.

254 Seminar: Financial Management in the Federal Service (3)

Functions and interrelationships of central federal financial management agencies, their policy, economic and managerial roles, controllership functions, and standards and practices in financial management.

260 Seminar: Policy Formulation and Administration (3)

Analysis in depth of factors and processes involved in policy development, with particular attention to selected areas of national policy; development of agency goals and objectives.

261 The Public and the Administrator (3)

Nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs.

262 Seminar: Science, Technology, and Public Policy (3)

The impact of science and technology upon public administration in terms of both administrative practice and national policies.

298 Case Studies in Public Administration (3)

Analysis and discussion of problems in public management by use of the case method.

299 Thesis Seminar (3)

Examination of thesis standards, research philosophy, and methodology.

300 Thesis Research (3)**Religion**

Chairman: R.G. Jones, Professor of Religion; O-12, Telephone: 676-6325

9 The Old Testament (3)

Historical and literary study of the Old Testament with consideration of development of religious ideas, institutions, and outstanding personalities.

10 The New Testament (3)

Study of New Testament literature from the standpoint of occasion, purpose, dominant ideas, and permanent values. Emphasis on approach, structure, and significance of the Gospels and Epistles.

59-60 History of Religions (3-3)

First half: primitive religion and the religions of the East (Hinduism, Buddhism, Taoism, Confucianism, Shinto). *Second half:* religions of the West and Near East (ancient religions, Judaism, Christianity, Islam). Origins, evolution, and contemporary status in historical context.

132 History of Modern Christianity (3)

Origin and development of Protestantism; Roman Catholic revival; status of Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life.

172 Religion in American Culture (3)

Growth of religious bodies and institutions in relation to American culture, development of religious thought, and analysis of the contemporary religious scene.

Slavic Languages and Literatures

Chairman: Helen Yakobson, Professor of Russian; GG-10, Telephone: 676-6335

1-2 First-year Russian (3-3)

A year course; credit toward a degree at this University given on completion of Slavic 2. Beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice.

***1S-2S Scientific Russian for Beginners (3-3)**

An introduction to the essentials of Russian grammar and reading of modern scientific texts.

3-4 Second-year Russian (3-3)

A year course; credit toward a degree at this University given on completion of Slavic 4. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Prerequisite: Slavic 1-2 or two years of high school Russian.

9-10 Russian Conversation and Composition (3-3)

Listening comprehension; oral and written practice. Prerequisite: Slavic 3-4 or permission of instructor.

91-92 Introduction to Russian Literature (3-3)

Survey of Russian literature, in translation, from earliest periods through literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion—in English.

* This is a special course. It cannot serve as a prerequisite to any advanced course in Slavic Languages and Literatures.

93-94 Introduction to Slavic (non-Russian) Literature (3-3)

Survey of non-Russian Slavic literatures, in translation, from early periods to present; emphasis on the contemporary scene. Lecture, recitation, and discussion—in English.

109-10 Advanced Conversation and Composition (3-3)

Developing proficiency in oral and written expression. Prerequisite: Slavic 10 or equivalent.

161-62 Russian Culture (3-3)

Survey of Russian cultural heritage from origins of ancient Russia to present—in English. Lecture, recitation, discussion, and individual reports on assigned topics.

165 Soviet Literature (3)

Survey of major literary figures, movements, styles. Revolution and its impact on literature and writers. Revival of psychological novel, short story, contemporary poetry—in English.

Sociology

Chairman: R.G. Brown, Professor of Sociology; Chapin 203, Telephone: 676-6345

Departmental prerequisite: Sociology 1 is prerequisite to all other courses in Sociology.

1-2 Introductory Sociology (3-3)

Development of culture and personality, impact of groups and institutions on man's social behavior. Survey of fields within sociology.

41 American Social Problems (3)

Analysis of major social problems confronting the United States. Factors producing social problems, their nature and treatment.

124 Medical Sociology (3)

Sociological factors and processes which relate to physical and mental health and disease, analysis of patterned social relationships in the field of health and medicine, the hospital as a social system.

126 Urban Sociology (3)

Place of the city in larger society; growth of the city, problems of urban living, group life, personality, urban housing, city planning, and suburban development.

127 Population Problems (3)

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: eugenics and birth control.

129 Race and Minority Groups (3)

Analysis of relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice.

130 Social Stratification: Class and Status (3)

Nature of class structure, patterns of status, prestige relations, differential class behavior, analysis of comparative social structure and social mobility.

134 Marriage and the Family (3)

Courtship as a social process, marriage and marital adjustment, development of the family, parent-child relations, family problems, disorganization, divorce and family reorganization.

135 Juvenile Delinquency (3)

Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders. Prerequisite: Sociology 51 or permission of instructor.

Spanish*

Chairman: J.A. Frey, Associate Professor of Romance Languages: A-11, Telephone: 676-6330

1-2 First-year Spanish (3-3)

A year course: credit toward a degree at this University given on completion of Spanish 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose.

3-4 Second-year Spanish (3-3)

A year course: credit toward a degree at this University given on completion of Spanish 4. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Prerequisite: Spanish 1-2, or two years of high school Spanish.

51-52 Survey of Spanish Literature and Civilization (3-3)

Social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussions.

Special Education

Chairman: Perry Botwin, Professor of Special Education: S-30, Telephone: 676-6170

201 Education of Exceptional Children (3)

For prospective teachers. Educational modifications necessary to accommodate children with mental, physical, social, and emotional deviations in a school program. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education.

202 Nature and Needs I: the Mentally Retarded (3)

Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation; psychological and sociological implications.

* Administered by the Department of Romance Languages and Literatures.

tions. Principles of learning with respect to teaching retarded children. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education.

203 Teaching Mentally Retarded Children (3)

Educational methods and curricula developed for the mentally retarded from nursery school through high school. Organization and planning of instructional activities; selection and preparation of materials. Prerequisite: Special Education 201 and 202, or permission of instructor.

204 Nature and Needs IV: the Culturally Disadvantaged (3)

Environmental factors within our society which disadvantage children's capabilities to achieve school and life success. Early experiential deprivation, home and neighborhood values and expectancies, and self-concept development. Admission by permission of instructor.

240 Nature and Needs II: the Emotionally Disturbed (3)

Analysis of educational provisions for seriously disturbed children: definitions, characteristics, identification, and programs for prevention and re-education. Admission by permission of instructor.

242 Clinical Teaching of Emotionally Disturbed Children (3)

Lectures and discussions exploring psychoeducational techniques of teaching emotionally disturbed children and adolescents, interpersonal interaction between teachers and disturbed children. Selection of teaching methods and materials. Admission by permission of instructor.

260 Nature and Needs III: Crippled or Health-impaired Children (3)

Theory of crippling and other health-impairing conditions as they affect the needs of children. Examination of curricula. Prerequisite: Special Education 201 and permission of the instructor.

261 Teaching Crippled and Other Health-impaired Children in School, Home, and Hospital (3)

(Formerly Methods and Materials for Crippled or Health Impaired)

Programs, methods, and materials for teaching children with orthopedic and other health-related disorders. Organization and planning of instructional activities, including home and hospital teaching. Prerequisite: Special Education 201 and 260, or permission of instructor.

301 Psychology of Exceptional Children (3)

Psychological problems related to social, emotional, physical, and learning characteristics of handicapped children. Admission by permission of instructor.

302 Problems and Issues in Special Education (3)

(Formerly Problems and Issues in Mental Retardation)

Consideration of major current problems and issues in special education. Admission by permission of instructor.

303 Administration and Supervision of Special Education (3)

Philosophy and nature of special education; program organization, administration, and development. Surveying local level needs; program evaluation and supervision. Admission by permission of instructor.

306 Guidance and Counseling of Exceptional Children (3)

Educational, mental, social, vocational guidance of exceptional children and youth. Role of teacher in parent counseling. Community agencies involved in postschool rehabilitation, guidance, and recreational service for exceptional children. Admission by permission of instructor.

340 Mental Health of Culturally Deprived and Emotionally Disturbed Children (3)

Mental health problems affecting the culturally deprived child's vocational, educational, and emotional needs; teacher-child relationships; language differences in socioeconomic environments. Admission by permission of instructor.

Speech and Drama

Chairman: G.F. Henigan, Professor of Speech; Auditorium 6, Telephone: 676-6350

1 Effective Speaking (3)

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2.

2 Persuasive Speaking (3)

Continuation of Speech and Drama 1, which is prerequisite, emphasis on speech composition and elementary principles of persuasion.

11 Voice and Diction (3)

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to study of sounds of English, standards of speech. Class instruction in problems of rate, volume, pitch, quality. Recording fee, \$4.

91 Parliamentary Procedure and Group Participation (3)

Principles and procedures for effective speech communication to function successfully at various levels of responsibility in academic, social, professional, civic, or business organizations. Prerequisite: Speech and Drama 1 or 11, or permission of instructor.

***111 Effective Speech Communication (3)**

The tools and principles of effective speech communication, including practice in the organization, delivery, and evaluation of presentations commonly encountered by professional personnel. Not open to speech majors.

121 Group Discussion and Conference Leadership (3)

Process of thinking and problem solving in committees and small groups; methods of leading discussions and conferences. Prerequisite: 6 hours of speech or permission of instructor.

* This course can be adapted to the needs of a specific group

Statistics

Chairman: Solomon Kullback, Professor of Statistics; Chapin 103, Telephone: 676-6355

Departmental prerequisite: one entrance unit in algebra is prerequisite to courses in Statistics numbered below 100.

51 Introduction to Business and Economic Statistics (3) (Campus Course)

Lecture (2 hours), laboratory (2 hours). Elementary principles for analyzing and interpreting statistical data: characteristic values; measures of variability, sampling, time series analysis, and simple correlation. Laboratory fee, \$9.

52 Mathematics of Finance (3) (Campus Course)

Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation.

91 Principles of Statistical Methods (3) (Campus Course)

Lecture (2 hours), laboratory (2 hours). Variables and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Laboratory fee, \$9.

101-2 Basic Principles of Statistical Methods (3-3)

Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions.

104 Statistics in the Behavioral Sciences and Education I (3) (Campus Course)

Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques for research problems in behavioral sciences and education. Laboratory fee, \$9.

107 Statistics for Engineers (3)

Probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, engineering applications. Prerequisite: differential and integral calculus.

109-10 Quality Control and Reliability Techniques (3-3)

Statistical methods and probability models for quality control and reliability applications. Prerequisite: Statistics 91 or 107.

111 Business and Economic Statistics I (3)

Statistical processes as tools in decision making in areas of economics and business. Prerequisite: Statistics 51 or permission of instructor.

112 Business and Economic Statistics II (3)

Case work to illustrate quantitative procedures for solution of economic and business problems. Prerequisite: Statistics 111 or equivalent.

117 Analysis of Variance (3) (Campus Course)

Lecture (2 hours), laboratory (2 hours). Introduction to the design of experiments and analysis of variance, random block, factorial, Latin square

101-2 Basic Principles of Statistical Methods (3-3), which is offered off-campus, may be taken for credit by students who have received credit for Statistics 51, 53, or 91.

and Greco-Latin square designs; analysis of covariance. Prerequisite: 3 semester hours selected from Statistics 91, 104, 107. Laboratory fee, \$9.

118 Regression Analysis (3) (Campus Course)
(Formerly Correlation and the Chi-square Test)

Lecture (2 hours), laboratory (2 hours). Regression and correlation theory: simple, partial, and multiple. Prerequisite: 3 semester hours selected from Statistics 91, 104, 107. Laboratory fee, \$9.

155 Introduction to Probability (3)

Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: one entrance unit in algebra.

157-58 Introduction to Mathematical Statistics (3-3)

Distribution theory, sampling theory, estimation, hypothesis testing, regression analysis, experimental design. Prerequisite: differential and integral calculus.

207-8 Operations Analysis (3-3)

Basic concepts and techniques. Introduction to simulation, linear programming, game theory, queueing theory, inventory theory, and other topics. Admission by permission of instructor.

Swedish*

Chairman: L.G. Seeger, Associate Professor of German; Rice 408, Telephone: 676-6195

1-2 First-year Swedish (3-3)

A year course: credit toward a degree at this University given on completion of Swedish 2. Essentials of Swedish grammar, conversation, composition, and reading of simple prose.

* Administered by the Department of Germanic Languages and Literatures.

THE UNIVERSITY

HISTORY

GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington, whose name it bears, is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance to said College, or denied any of the privileges, immunities, or advantages thereof, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period,

the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe, who signed the charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

THE COLLEGES, SCHOOLS, AND DIVISIONS

George Washington University includes eleven colleges, schools, and divisions, as follows:

*Columbian College of Arts and Sciences**, through its lower and upper divisions, offers four-year programs in the arts and sciences leading to the degrees of Bachelor of Arts, Bachelor of Science, and (in cooperation with the Department of Pathology and the University Hospital) Bachelor of Science in Medical Technology. The lower division also provides the first two years of the prelegal and premedical programs; the preprofessional work required for admission to the School of Education, the School of Government and Business Administration, and the School of Public and International Affairs; and a two-year terminal Associate in Arts curriculum in Accounting. The Faculty of the College also has academic jurisdiction over off-campus programs leading to the degrees of Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography. These off-campus programs are administered by the College of General Studies.

*The Graduate School of Arts and Sciences** offers advanced study and research leading to the degrees of Master of Arts, Master of Fine Arts, Master of Music, Master of Science, and Doctor of Philosophy.

*The School of Medicine** offers work leading to the degree of Doctor of Medicine.

The National Law Center offers courses leading to the degrees of Juris Doctor, Master of Laws, Master of Comparative Law, Master of Comparative Law (American Practice), and Doctor of Juridical Science; and special programs in Continuing Legal Education.

The School of Engineering and Applied Science offers courses leading to the degree of Bachelor of Science in the following areas: Civil Engineering, Electrical Engineering, Measurement Science, and Mechanical Engineering. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education; graduate studies leading to the degrees of Master of Arts in Education, Master of Arts in Teaching, Education Specialist, and Doctor of Education.

* Columbian College of Arts and Sciences and the Graduate School of Arts and Sciences cooperate with the School of Medicine in offering the combined degrees of (1) Bachelor of Arts and Doctor of Medicine and (2) Master of Science and Doctor of Medicine.

The School of Government and Business Administration offers undergraduate programs leading to the degree of Bachelor of Business Administration and graduate programs leading to the degrees of Master of Arts in Government, Master of Business Administration, Master of Public Administration, Master of Urban and Regional Planning; the Graduate Certificate in Health Care Administration; the degrees of Doctor of Business Administration and Doctor of Public Administration. The School also has academic jurisdiction over off-campus programs leading to the following degrees: Bachelor of Science in General Studies, Master of Science in Administration, and Master of Science in Business Administration. These off-campus programs are administered by the College of General Studies.

The School of Public and International Affairs offers undergraduate programs leading to the degree of Bachelor of Arts and graduate programs leading to the Certificate of the Institute for Sino-Soviet Studies and the degree of Master of Arts. The School of Public and International Affairs has academic jurisdiction over the off-campus program leading to the degree of Master of Science in International Affairs, which is administered by the College of General Studies.

The College of General Studies supplements the adult education program of the University through campus and off-campus study; conferences, seminars, and special projects; and continuing education and noncredit programs. The College of General Studies also administers the off-campus programs over which the Columbian College of Arts and Sciences Faculty, the School of Government and Business Administration, and the School of Public and International Affairs have academic jurisdiction.

The Division of University Students makes available courses for students not candidates for degrees in this University.

The Summer Sessions.

ACADEMIC STATUS

George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The School of Government and Business Administration has maintained full membership in the Middle Atlantic Association of Colleges of Business Administration since 1961. It joined the Council on Graduate Education for Public Administration in 1966. The programs in Public Accounting designed to prepare students for Certified Public Accountants examinations have been approved by the state boards of New York and of Maryland.

LOCATION

George Washington University is in downtown Washington, four blocks west of the White House and east of the Potomac River with its extensive parkway. Within a few blocks are the buildings housing the offices of many of the departments of the Government.

GOVERNMENT

The government and general education management of George Washington University are vested in a self-perpetuating Board of Trustees, with the President of the University as an ex officio member. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

THE GENERAL ALUMNI ASSOCIATION

The objectives of this Association are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to or life members of the George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE BOARD OF TRUSTEES

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-
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 - Miss Jacqueline Cochran, L.H.D., LL.D., Sc.D.
 - *Donald C. Cook, B.A., M.B.A., J.D., LL.M., L.H.D., LL.D.
 - *Harry Filmore Dowling, B.A., M.D., Sc.D.
 - Harry F. Duncan
 - Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President of the University, ex officio*

* Nominated by the Alumni.

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 Mrs. Katharine Graham, B.A.
 Melville Bell Grosvenor, B.S., Sc.D., LL.D.
 Brooks Hays, B.A., LL.B., LL.D., L.H.D., D.C.L., D.D., HH.D.
 John Edgar Hoover, LL.M., LL.D., Sc.D., D.C.L.
 Joseph D. Hughes, B.S., LL.B., LL.M., LL.D.
 Lewellyn A. Jennings
 David Matthew Kennedy, LL.B., B.A., LL.D.
 Franklin Jerome Lunding, LL.B., LL.D.
 Jeremiah Milbank, Jr., B.A., M.B.A.
 Godfrey Leon Munter, B.A., LL.B., LL.D.
 Robert Daniel Murphy, LL.B., LL.M., LL.D.
 Thornton W. Owen, B.S. in C.E., B.A.
 Sidney Dillon Ripley II, Ph.D., L.H.D., Sc.D.
 Carleton D. Smith
 Charles E. Smith
 Lewis L. Strauss, Sc.D., LL.D., L.H.D.
 John W. Warner, B.S., LL.B.
 John Johnston Wilson, LL.B.
 Watson W. Wise, Ph.B.
 Stephen Russell Woodzell, B.S. in E.E.
 James Otis Wright, B.S., LL.B.
 Eugene M. Zuckert, B.A., LL.B., LL.D., Sc.D.

HONORARY TRUSTEES

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 Charles Carroll Glover, Jr., M.A., LL.B., LL.D.
 Llysses S. Grant III, B.S., Graduate United States Engineers School, LL.D.,
 Sc.D., L.H.D.
 Alfred Henry Lawson, LL.B., LL.D.
 John Keown McKee
 Benjamin Mosby McKelway, Litt.D.
 Walter George Ross, LL.D.
 Sidney William Souers, B.A., LL.D.
 Alexander Wetmore, Ph.D., Sc.D.
 Charles Stanley White, M.D., Sc.D.
 Lloyd Bennett Wilson

OFFICERS OF ADMINISTRATION

THE UNIVERSITY

Lloyd Hartman Elliott, M.A., Ed.D., LL.D., *President*
 Harold Frederick Bright, Ph.D., *Vice President for Academic Affairs*
 Henry William Herzog, B.S., *Vice President and Treasurer*

^{*}Nominated by the Alumni.

Warren Gould, M.A., *Vice President for Resources*
William David Johnson, B.S., *Comptroller; Director of the Budget*
Louis Harkey Mayo, B.S., J.S.D., *Vice President for Advanced Policy Studies*
William Parkhurst Smith, Jr., B.A., M.B.A., *Vice President for Student Affairs*
Frederick Russell Houser, M.A., *Registrar*
Joseph Young Ruth, B.A., *Director of Admissions*

THE COLLEGE OF GENERAL STUDIES

Eugene Ross Magruder, M.B.A., Ph.D., *Dean of the College of General Studies*
Paul Vernon Bissell, Ph.D., *Assistant Dean of the College of General Studies*
Elzberry Waters, Jr., M.A., *Director of Credit Programs*

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Calvin Darlington Linton, Ph.D., *Dean of Columbian College of Arts and Sciences*
George Martin Koehl, M.A., *Associate Dean of Columbian College of Arts and Sciences*
Joseph Louis Métivier, Jr., M.A., *Assistant Dean of Columbian College of Arts and Sciences*
Robert Clinton Rutledge, Ph.D., *Assistant Dean of Columbian College of Arts and Sciences*
Harry Elwood Yeide, Jr., Ph.D., *Assistant Dean of Columbian College of Arts and Sciences*

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

James Carlton Dockeray, Ph.D., *Dean of the School of Government and Business Administration*
Edwin Joseph Baughman Lewis, B.A., M.B.A., *Assistant Dean for Special Projects in the School of Government and Business Administration*

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Hiram Miller Stout, Ph.D., *Dean of the School of Public and International Affairs*

COLLEGE OF GENERAL STUDIES

DEAN'S COUNCIL*

G.R. Allen, P.V. Bissell, H.L. LeBlanc, P.J. Mika, Hyman Orlin, H.R. Page,
J.P. Reesing, Jr., K.E. Stromsem, Elzberry Waters, Jr., F.R. Houser (ex officio),
J.Y. Ruth (ex officio)

COMMITTEE ON SCHOLARSHIP

P.V. Bissell (*Chairman*), G.F. Conner, J.A. Morgan, Jr., Charles Rice, Elzberry
Waters, Jr., Bette Bladen (ex officio), F.R. Houser (ex officio)

STAFF OF INSTRUCTION

JUNE 1, 1967 TO MAY 31, 1968

John Thomas Abell, *Lecturer in Business Administration*
B.S. 1954, Michigan State University; M.B.A. 1965, Arizona State University
Leonard Ackerman, *Assistant Professorial Lecturer in Business Administration*
B.A. 1956, Rutgers, the State University; Ed.D. 1967, George Washington University
Elizabeth Byrne Adams, *Assistant Professor of Business Administration*
B.S. 1955, Queens College, New York; M.A. in Ed. 1957, George Washington University
James Richard Ahern, *Associate Professorial Lecturer in Business Administration*
B.S. 1947, U.S. Naval Academy; M.B.A. 1959, Harvard University
George Richard Allen, *Associate Professor of Business Administration*
B.S. 1962, M.B.A. 1965, University of Pittsburgh; D.B.A. 1967, Arizona State University
James Owen Allison, *Lecturer in Business Administration*
B.A. 1949, St. John's University, New York; M.B.A. 1966, George Washington University
Abbal Alnasrawi, *Associate Professorial Lecturer in Economics*
B.A. 1953, Baghdad University, Iraq; M.A. 1957, Ph.D. 1965, Harvard University
Ahmad Mustafa Al-Samarrie, *Assistant Professorial Lecturer in Economics*
B.S. 1953, University of California, Berkeley; M.A. in Govt. 1959, Ph.D. 1966, George
Washington University
Francis Graham Anderson, Jr., *Lecturer in Business Administration*
B.A. 1964, M.B.A. 1965, George Washington University
George Blake Anderson, *Lecturer in Business Administration*
B.S. 1954, M.S. 1955, Georgia Institute of Technology

*The Vice President for Academic Affairs, the Dean and Assistant Dean of the College are ex officio members of the Council.

- Windsor Temple Anderson, *Special Lecturer in the College of General Studies*
B.S. 1941, U.S. Military Academy; M.B.A. 1951, Harvard University
- Alice Erwin Chandler Andrews, *Associate Professorial Lecturer in Geography*
B.A. 1949, University of Georgia; M.A. 1950, Northwestern University
- Robert James Andrews, *Assistant Professorial Lecturer in Business Administration*
B.S. 1942, M.S. 1947, Pennsylvania State University
- Donald Peter Arnavas, *Assistant Professorial Lecturer in Business Administration*
B.A. 1958, Iona College; J.D. 1961, Georgetown University
- Salvatore Arrigo, *Assistant Professorial Lecturer in Business Administration*
B.S. 1954, Le Moyne College, New York; J.D. 1960, Georgetown University
- Lewis Jordan Ashley, *Associate Professorial Lecturer in Business Administration*
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Edward Daniel Unger, *Lecturer in Economics*

B.A. 1961, M.A. 1965, University of Kentucky

Michael Edmund Urette, *Lecturer in Business Administration*

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Arthur Uscher, *Professorial Lecturer in Business Administration*

B.A. 1939, Syracuse University; M.B.A. 1957, American University

Brian Lane Usilaner, *Lecturer in Business Administration*

B.S. 1962, M.S. 1963, New York University

Merle Glenn Van Dyke, *Assistant Professor of Special Education*

B.A. 1957, Calvin College; M.A. 1958, Michigan State University

William Arthur Vogely, *Professorial Lecturer in Economics*

B.A. 1945, Kenyon College; M.A. 1947, Ph.D. 1958, Princeton University

Paul Wakefield, *Assistant Professorial Lecturer in English*

B.A. 1934, Loyola University, Louisiana; M.A. 1939, George Peabody College for Teachers

Jack Wright Waldrip, *Assistant Professor of Management*

B.A. 1951, M.A. 1953, University of Tennessee

Howard Kent Walker, *Assistant Professorial Lecturer in Political Science*

B.A. 1957, M.A. 1958, University of Michigan; Ph.D. 1968, Boston University

Dewey Wallace, Jr., *Associate Professor of Religion*

B.A. 1957, Whitworth College; B.D. 1960, Princeton Theological Seminary; M.A. 1962, Ph.D. 1965, Princeton University

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- William Hamlin Ward, *Assistant Professorial Lecturer in Statistics*
B.A. 1950, Williams College; M.S. 1954, Ph.D. 1956, Purdue University
- John George Warner, *Assistant Professorial Lecturer in Business Administration*
B.A. 1949, New Jersey State College, Montclair; M.A. 1961, George Washington University
- James Robert Wason, *Associate Professorial Lecturer in Business Administration*
B.A. 1949, American International College; Ph.D. 1963, American University
- Jean Benton Waterous, *Assistant Professorial Lecturer in History*
B.A. 1940, Mount Holyoke College; M.A. 1942, George Washington University
- Willard Mills Waterous, *Lecturer in English*
B.A. 1943, Harvard University; M.A. 1947, Columbia University
- Elzberry Waters, Jr., *Lecturer in Business Administration*
B.A. 1963, M.A. 1965, George Washington University
- Edgar Weinberg, *Assistant Professorial Lecturer in Public Administration*
B.S. 1937, City College, New York; M.A. 1950, American University
- William Julius Wenker, *Lecturer in Business Administration*
Mus.B. 1953, Mus.M. 1955, University of Portland; M.S. 1965, Stanford University
- Frederick Wescoe, *Assistant Professorial Lecturer in Education*
B.S. 1947, Temple University; M.S. 1955, Indiana University
- John Lee Westrate, *Professorial Lecturer in Public Administration*
B.A. 1944, Illinois College; M.A. 1949, Ph.D. 1963, University of Chicago
- Arthur Royall Whitaker, *Assistant Professorial Lecturer in Business Administration*
B.A. 1957, Ph.D. 1965, University of Pennsylvania
- John Charles White, *Lecturer in Business Administration*
B.A. 1958, University of Maryland; M.A. 1964, George Washington University
- Kenneth Randolph Whiting, *Professorial Lecturer in International Affairs*
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- Robert Lee Williams, *Assistant Professor of Education*
B.S. in Ed. 1952, M.A. 1955, West Virginia University; Ed.D. 1964, George Washington University
- Tyler Edward Williams, Jr., *Associate Professorial Lecturer in Business Administration*
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- William Willner, *Assistant Professorial Lecturer in Business Administration*
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- Herbert Simon Winokur, Jr., *Assistant Professorial Lecturer in Business Administration*
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B.S. 1943, Morris Harvey College; M.S. 1948, Northwestern University; M.S. 1956, Florida State University
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B.S. 1935, New York University; M.A. 1943, Ph.D. 1967, American University
- Irwin Melville Wolkow, *Assistant Professorial Lecturer in Business Administration*
B.A. 1948, M.A. 1949, Boston University

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COLLEGE OF GENERAL STUDIES, Dean of the College

NATIONAL LAW CENTER, Dean of the Center

STUDENT FINANCIAL AID, Office of Student Financial Aid

SCHOOL OF ENGINEERING AND APPLIED SCIENCE, Dean of the School

UNDERGRADUATE AND GRADUATE CATALOGUE (Arts and Sciences, Education,
 Government and Business Administration, Public and International Affairs),
 Office of Admissions

SCHOOL OF MEDICINE, Admissions Office, School of Medicine

SUMMER SESSIONS, Dean of the Summer Sessions

SCHEDULE OF CLASSES: FALL AND SPRING SEMESTERS, Registrar

SCHEDULE OF CLASSES: SUMMER SESSIONS, Dean of the Summer Sessions

COLLEGES AND SCHOOLS—DEGREE PROGRAMS

COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bachelor of Arts (B.A.), Bachelor of Science (B.S.), and Bachelor of Science in Medical Technology (B.S. in Med.Tech.)

GRADUATE SCHOOL OF ARTS AND SCIENCES: Master of Arts (M.A.), Master of Fine Arts (M.F.A.), Master of Music (Mus.M.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER: Juris Doctor (J.D.), Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), Master of Comparative Law (American Practice) (M.Comp.L.(Am.Prac.)), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Bachelor of Science (Civil Engineering) (B.S. (C.E.)), Bachelor of Science (Electrical Engineering) (B.S. (E.E.)), Bachelor of Science (Measurement Science) (B.S. (Meas.S.)), Bachelor of Science (Mechanical Engineering) (B.S. (M.E.)), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

SCHOOL OF EDUCATION: Bachelor of Arts in Education (B.A. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching (M.A.T.), Master of Arts in Education (M.A. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION: Bachelor of Business Administration (B.B.A.), Master of Arts in Government (M.A. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Master of Science in Administration (M.S. in Adm.), Master of Science in Business Administration (M.S. in B.A.), Master of Urban and Regional Planning (M. of Urb. and Reg.Plan.), Graduate Certificate in Health Care Administration (Grad.Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS: Bachelor of Arts (B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), Master of Arts (M.A.), and Master of Science in International Affairs (M.S. in I.A.)

COLLEGE OF GENERAL STUDIES: Bachelor of Science in General Studies (B.S. in Gen.Std.), Bachelor of Science in Geodetic and Cartographic Science (B.S. in Geod. and Cart.Sc.), and Bachelor of Science in Oceanography (B.S. in Ocea.)

THE GEORGE WASHINGTON UNIVERSITY

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE SCHOOL OF ARTS AND SCIENCES, 1893

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1865

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

THE SCHOOL OF EDUCATION, 1907

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION, 1925

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

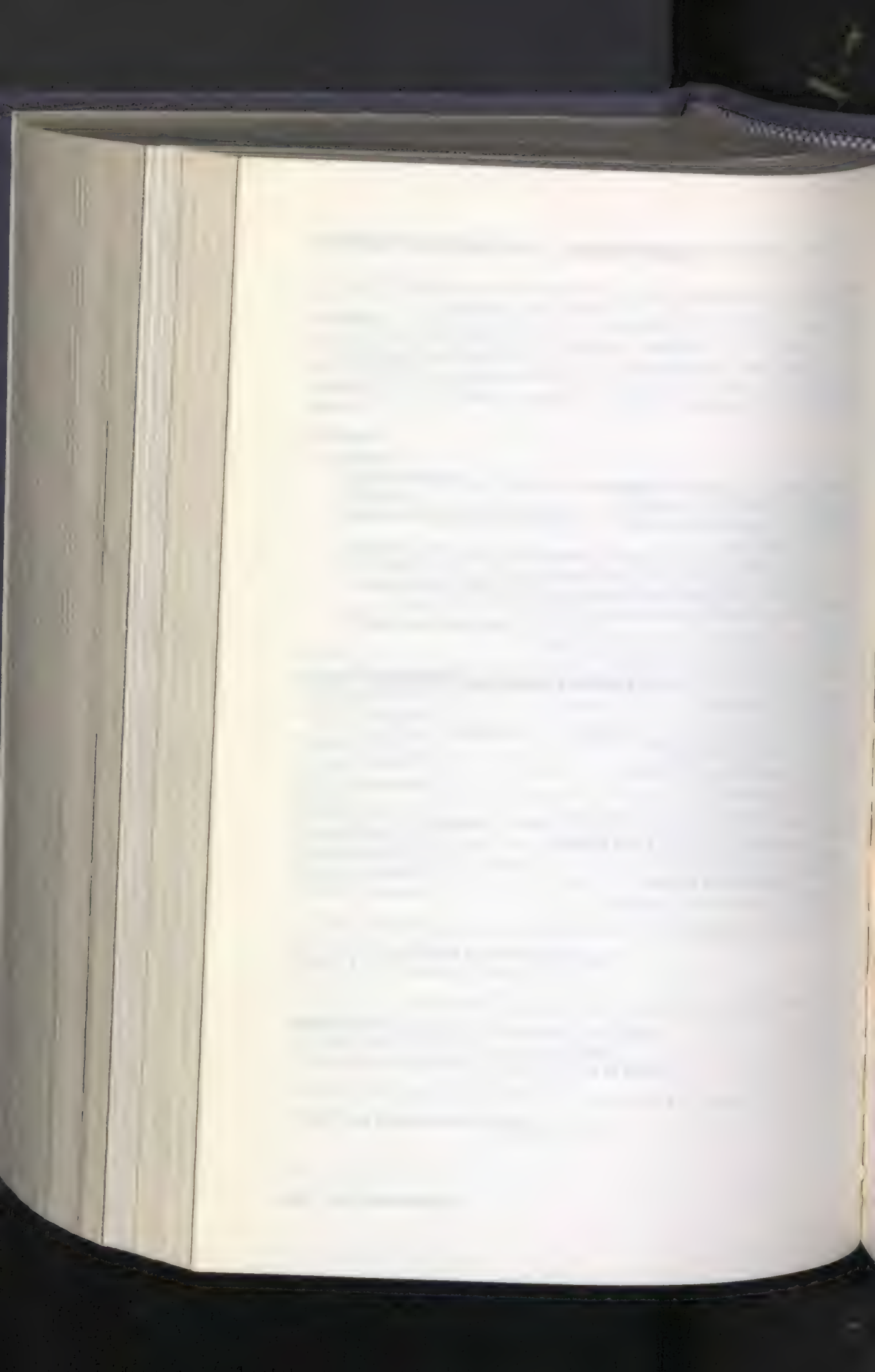
THE GEORGE WASHINGTON UNIVERSITY BULLETIN



SUMMER
SESSIONS

7

1968



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A SUMMER SEMESTER IN THE NATION'S CAPITAL

THE GEORGE WASHINGTON UNIVERSITY announces a two-term summer program which makes it possible for students to earn 14 semester hours of credit during the summer months. The Library, classrooms, and residence hall are air-conditioned. For courses offered at specific times, refer to the hourly schedule on pages at the back of this catalogue. For term dates, see the calendar on pages 5 and 6.

CALENDAR FOR THE 1968 SUMMER SESSIONS

Application for Graduation—An "Application for Graduation" form *must* be filed and the appropriate fee paid at the time of registration for the summer session of the senior or final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, 1968, provided they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

GRADUATE SCHOOL OF ARTS AND SCIENCES

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

DIVISION OF UNIVERSITY STUDENTS

First Session

- June 17* Registration for first 5-week session and 8-week courses (10 am–8 pm) *Monday*
- June 17* Application for graduation due in Registrar's Office *Monday*
- June 18* First-session classes begin *Tuesday*
- July 4* Independence Day (holiday) *Thursday*
- July 23* First-session classes end *Tuesday*
- July 24* First-session examination day *Wednesday*
- August 28* Master's theses completed in summer due in appropriate Dean's Office *Wednesday*

Second Session

- July 25 Registration for second 5-week session (10 am–7 pm) *Thursday*
 July 25 Application for graduation due in Registrar's Office *Thursday*
 July 26 Second-session classes begin *Friday*
 August 28 Master's theses completed in summer due in appropriate Dean's Office *Wednesday*
 August 29 Second-session classes end *Thursday*
 August 30 Second-session examination day *Friday*

NATIONAL LAW CENTER

- June 3 Registration for all sessions (11 am–7 pm) *Monday*
 June 4 First- and 13-week sessions begin *Tuesday*
 July 4 Independence Day (holiday) *Thursday*
 July 12 First-session classes end *Friday*
 *July 15–17 First-session examination period *Monday–Wednesday*
 July 18 Registration for students attending 2d session only (11 am–6 pm) *Thursday*
 July 19 Second-session classes begin *Friday*
 August 28 Last day of classes *Wednesday*
 August 29–31 Second session and 13-week session examination period *Thursday–Saturday*

SCHOOL OF EDUCATION

- June 17 First 3-week workshop session registration (10 am–8 pm) *Monday*
 June 18 First 3-week workshop session classes begin *Tuesday*
 July 4 Independence Day (holiday) *Thursday*
 July 5 First 3-week workshop session classes end *Friday*
 July 6 National Teacher Examinations *Saturday*
 July 8 Second 3-week workshop session registration (9 am–6 pm); classes begin *Monday*
 July 8 Six-week session registration (9 am–6 pm); classes begin *Monday*
 July 12 Ed.D. and A.M. in Ed. July comprehensive examination applications due *Friday*
 July 26 Second 3-week workshop session classes end *Friday*
 July 27 Ed.D. and A.M. in Ed. comprehensive examinations *Saturday*
 July 29 Third 3-week workshop session registration (9 am–5 pm); classes begin *Monday*
 August 16 Six-week session and third 3-week workshop session classes end *Friday*

FALL SEMESTER 1968

- September 17–18 Registration—*Tuesday–Wednesday*

* Classes scheduled Wednesday evenings for the 13-week session will meet on Wednesday, July 17.

THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington, whose name it bears, is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "that persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half

acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains here.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences (undergraduate); the Graduate School of Arts and Sciences; the professional schools, which include the National Law Center and the schools of Medicine, Engineering and Applied Science, Education, Government and Business Administration, and Public and International Affairs; the College of General Studies; the Division of University Students; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The National Law Center is a charter member of the Association of American Law Schools and is approved by the Section of Legal Education and Admissions to the Bar of the American Bar Association. The School of Medicine is a member of the Association of American Medical Colleges and is one of the medical colleges which have been continuously approved by the American Medical Association. Curricula of the School of Engineering and Applied Science in Civil, Electrical, and Mechanical Engineering are accredited by the Engineer's Council for Professional Development. The School of Education is a charter member of the American Association of Colleges for Teacher Education and is accredited by the National Council for Accreditation of Teacher Education. The Department of Chemistry is on the approved list of the American Chemical Society. The School of Government and Business Administration maintains full membership in the Middle Atlantic Association of Colleges of Business Administration. The Programs in Public Accounting designed to prepare students for Certified Public Accountants examinations have been approved by the state boards of New York and Maryland. The program in Hospital Administration has been accredited by the Association of University Programs in Hospital Administration since 1962.

EDUCATIONAL FACILITIES

The University Library.—The University Library contains approximately 437,000 volumes and, with the exception of the law and medical collections, is housed in the Library Building.

Regulations governing the use of the Library, the circulation of books, and the use of reserve books and periodicals are available at the service desks of the Library.

Other Library Facilities in Washington.—The student has access also to the Library of Congress, the Public Library of the District of Columbia and its branches, the Library of the Pan American Union, the Library of the Bureau of Railway Economics, the Library of the United States Department of Agriculture, the Library of the United States Office of Education, the National Library of Medicine, the Library of the Smithsonian Institution, and many other great special collections of the government departments.

Research Facilities of Washington.—The arrangement of the summer schedule of classes permits the full-time student to avail himself of the opportunity to study, at first hand, the working of the Federal Government and so to form a background for intelligent and useful citizenship.

In the departmental libraries of the Federal Government are a multitude of reports made by eminent specialists in all fields of science on the results of study and research in the bureaus, experimental stations, laboratories, museums, and observatories of the Nation.

In addition to the governmental collection the student has available the research facilities of such scientific and educational groups, whose headquarters are situated in Washington, as the Carnegie Institution, the American Council on Education, the National Academy of Sciences, the National Research Council, the National Education Association, and the National Geographic Society.

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- Robert Lee Williams, A.M., Ed.D., *Assistant Dean of the Summer Sessions*
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- Hugh Yancey Bernard, A.B., B.S. in L.S., J.D., *Librarian of the Law Library*

THE SUMMER SESSIONS

THE PROGRAMS OF THE SUMMER SESSIONS have been planned to meet the needs of full- and part-time students.

During the summer of 1968, Columbian College of Arts and Sciences, the Graduate School of Arts and Sciences, the School of Government and Business Administration, the School of Public and International Affairs, and the Division of University Students offer courses in two 5-week sessions, with some graduate seminars and courses extending over an 8-week period. The School of Engineering and Applied Science offers courses in an 8-week period. The National Law Center offers courses in three sessions, and the School of Education offers courses in a 6-week session and three 3-week workshop sessions.

The time at which each course is offered (session and hours) is stated at the end of the course description. For the convenience of the student an hourly schedule of classes, arranged by session, appears on pages 88-94.

Admission

APPLICATION FOR ADMISSION OR READMISSION

THE APPLICATION FOR ADMISSION to degree candidacy should be accompanied by a \$25 application fee. There is no application fee for the student who is applying for nondegree status in the Division of University Students.

NONDEGREE STATUS

Application for nondegree status in the Division of University Students should be received, with any required credentials, by the Friday before the registration date of the session for which admission is sought (see Calendar, pages 5 and 6).

DEGREE CANDIDACY

Students from secondary schools wishing to begin college as degree candidates, in either the first or second term of the summer session, must submit application and all required credentials prior to March 1.

Undergraduate transfer students from other institutions, applicants for graduate programs, and readmission applicants must submit application and required credentials prior to May 1 for the first summer session and June 1 for the second summer session.

For admission to the National Law Center, see pages 26-27.

APPLICATION FORMS

The tearout postcard form inside the back cover of this catalogue may be used to request the Dean of the Summer Sessions to furnish the appropriate form for admission or readmission to the University for nondegree status or for a degree program. Students who attended the University in the spring semester of 1968 do not need to reapply to attend the Summer Sessions.

THE STUDENT NOT SEEKING A DEGREE

The student not seeking a degree from this University should complete application for admission to the Division of University Students. (See paragraph above.) This nondegree-granting division makes the work of the University available to the following five types of applicants:

1. The student registered for a degree at another institution is admitted to the extent that facilities permit. No transcript of record is required unless the student has been subject to academic or disciplinary action.*
2. The student over 21 years of age who is not working for a degree in this or another institution may be admitted to take courses for which he has adequate preparation, as determined by the department concerned. A transcript of record is not usually required.*
3. Secondary school applicants under 21 years of age who have not attended a college or higher institution may be admitted if they meet the entrance requirements of Columbian College of Arts and Sciences (see pages 23-24).
4. Secondary school applicants under 21 years of age who have been accepted by a regionally accredited university or college for the fall semester of 1968 may be admitted for the *summer session only* without filing a transcript if they submit a photostatic copy of their letter of unconditional acceptance.
5. Secondary school students applying for admission to the Secondary School Honors Program see page 37 for the description of the program and the special requirements.

THE STUDENT SEEKING A DEGREE

An applicant from a secondary school must:

1. Send to his high school principal the high school record form provided by the University, with the request that the completed form be mailed to the Office of Admissions.
2. Request a report of College Entrance Examination Board test scores be sent to the Office of Admissions directly from the Educational Testing Service, Princeton, N.J., or Berkeley, Calif. Every applicant is required to submit scores on the Scholastic Aptitude Test and the English Composition Achievement Test.

* For admission to the Division of University Students the student must be in good standing and eligible to continue in the institution last attended during the past calendar year. No student is eligible for admission if he has been suspended within the past calendar year.

ment Test. In addition, an Arts and Sciences applicant must take two other achievement tests in subjects related to his major fields of interest; an Engineering applicant must take the Mathematics Test (Level I or II).

An applicant who has attended one or more institutions of higher learning must request each registrar to mail to the Office of Admissions a transcript of his record, even though credits were not earned. An honorable dismissal is required from the institution last attended.

The appropriate report of Graduate Record Examination, when available, should accompany application to graduate degree candidacy.

Registration

A STUDENT MAY NOT REGISTER FOR CLASSES until admission to the University has been approved by the appropriate office.

A student previously registered in this University who was not registered for campus courses during the spring semester preceding this registration must apply for and receive a letter of readmission from the Office of Admissions (undergraduate) or appropriate Dean's Office (graduate), before he is eligible for registration.

Registration days and hours are stated in the calendar at the front of this catalogue. All students except those in the National Law Center should report first to the first floor of the University Library, 2023 G Street, N.W., where they will be given materials and detailed information concerning registration procedures. Bachelor of Laws degree candidates and candidates for graduate degrees in Law secure their registration packets and instructions at the Office of the Dean of the National Law Center in Stockton Hall.

Registration packets will be distributed from the University Library on June 17, 1968, for the first five-week session, and on July 25, 1968, for the second five-week session. Registration packets will be distributed for all other sessions (Law excluded) from the Office of the Registrar, Rice Hall, 2121 Eye Street, N.W.

Students planning to take courses in the first session and also in other sessions later in the summer may register at the first registration for *all* summer courses. Tuition for all courses is due and payable in full at the time of registration.

Students expecting to complete requirements for degrees during the Summer Sessions must apply for graduation as a part of registration for the Summer Sessions and pay the appropriate fee.

In special instances, with the permission of the instructor, a person who has been admitted to the University may be registered as an auditor in a class without being required to take active part in the exercises or to pass examinations. No academic credit will be allowed for such attendance. A student who takes a course as an auditor may not take the same course later for credit.

Summer Law students planning to take the New York Bar examination must register for both sessions, complete both, and carry a program of at least ten class periods a week (if day students) and at least eight class periods a week (if evening students). Students wishing to attend the second session only may register on July 18. Tuition fees are payable by the session.

CHANGES IN PROGRAM OF STUDY

Changes in programs of study may be made only with the permission of the adviser or major professor and the dean or director of the college, school, or division concerned.

Fees and Financial Regulations

THE FOLLOWING FEES have been adopted for the summer of 1968:

Tuition Fees

For each semester hour* (except for work taken by candidates for the degree of Doctor of Juridical Science and all other Doctoral candidates in residence in the University prior to the 1967 Summer Sessions..... \$60.00
Doctor of Juridical Science, including the final examination..... 1,700.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are due with the tuition fee for the course. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee, the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts..... 10.00
Bachelor's, Master's, Education Specialist, and Doctor's degrees..... 25.00
Certificate of the Institute for Sino-Soviet Studies, Graduate Certificate in Health Care Administration..... 25.00

Fee for Binding Master's Thesis..... 10.00

Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation..... 55.00

Special Fees

Application fee (degree candidate) nonrefundable..... 25.00
Application fee, Unclassified Students in the National Law Center, non-refundable..... 5.00
Admission tests (when required)..... 6.00-12.00
Late-registration fee, for failure to register within the designated period..... 15.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course..... 2.00
Reinstatement fee, for reinstatement after financial suspension..... 10.00

* Candidates for doctoral degrees (except for the degree of Doctor of Juridical Science) in residence in the University prior to the 1967 Summer Sessions may complete their programs under the schedule for payment of tuition fees in effect prior to July 1, 1967. For tuition fee for the degree of Doctor of Juridical Science, see above.

For each examination to qualify for advanced standing and for each special examination	5.00
English test for foreign students (when required)	5.00
Laboratory check-out fee, for failure to check out of chemistry laboratory by the date deadline set by the instructor.....	3.00
National Teacher Examinations fee, for Bachelor of Arts in Education degree candidates.....	9.00-13.00
Transcript fee, for each transcript of record.....	1.00
Withdrawal fee, charged in special cases.....	5.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Student Career Services Office; (2) the use of the University Library; (3) medical attention and hospital services described on pages 18-19. These privileges terminate when the student withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, Rice Hall, 2121 Eye Street, N.W. No student is permitted to complete registration or to attend classes until all fees are paid. Fees for each session are due in advance at the time of registration.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

WITHDRAWALS AND REFUNDS

Registrations are for the session, and no refunds or rebates are allowed. In no case will tuition be refunded because of absence from classes.

Payments apply only to the session for which registration charges are incurred, and in no case will these payments be credited to another session or term.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 check-out fee. A student who drops a course before the end of the session must check out of the laboratory at the next regular laboratory period.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

University Regulations

STUDENTS IN THE SUMMER SESSIONS are subject to the University regulations governing students enrolled during the academic year. Degree candidates are referred to the catalogues of the schools in which they are registered. Non-degree students should consult the Undergraduate and Graduate Catalogue.

Academic Credit.—The Summer Sessions are an integral part of the University. Academic credit for completed work will be given toward the appropriate degrees in the various colleges and schools of the University in accordance with their separate regulations and requirements.

Residence.—Summer Sessions work may be counted in residence but the candidate for a degree must satisfy the residence requirements of the school or college concerned.

Academic Work Load.—No full-time student may take more than 7 semester hours of work during each 5-week session. No student employed more than 20 hours a week may take more than 4 semester hours of work during each 5-week session.

In the School of Education, 3 semester hours constitutes a full-time program for full-time students in any one of the 3-week workshop sessions, and 6 semester hours represents full-time work in the 6-week session.

In the National Law Center the maximum amount of work that may be taken in a session by a full-time student is 6 semester hours; by an employed student, 4 semester hours.

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" office is maintained in the Student Union.

Student Services and Activities

HEALTH SERVICES

THE HEALTH SERVICES STAFF assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 10 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination* of all applicants for courses in Physical Education who lack reports, approved by the Office of Health Services, of examinations by home physicians; (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services†. All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

† See rule (5) for exception.

for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

HEALTH AND ACCIDENT INSURANCE

In addition to the above services, the Health Services Staff has arranged for Health and Accident Insurance, on an elective basis, for all full-time students. This policy covers the participant for 12 months, whether at home, at the University, or elsewhere.

Current yearly cost is \$31.20 (subject to change) payable at the fall registration. Arrangements can be made to pay in two installments of \$15.60 at the fall and spring registrations.

This policy contract is between the individual student and the insurance carrier and is accepted at any hospital or emergency room that accepts this type of medical work. Details of the policy are available at the Health Services Office.

THE READING CENTER

The Reading Center, 2018 Eye Street, N.W., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school, college, and adult levels.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students, college students, and adults are offered throughout the year at stated intervals. Special classes for study skills and spelling are also available. Emphasis is placed on improve-

ment of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Reading Clinic.—The fee for individual diagnosis is \$60; for individual instruction, \$8 a lesson; for semi-individual instruction, \$6 a lesson; for instruction in small groups with common reading difficulties, \$5 a lesson.

Reading Improvement.—Classes are offered for students on high school and adult levels, including college and graduate students. Students are grouped according to needs; and emphasis is placed on vocabulary, study skills, spelling, and speed of comprehension. The fee for full-time students currently registered in the University is \$60 for twenty lessons; for other clients, \$100 for twenty lessons.

All fees are payable in advance at the Office of the Cashier.

PSYCHOLOGICAL CLINIC

The George Washington University Psychological Clinic, 718 Twenty-first Street, N.W., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Individual psychotherapy is available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science; admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$40; for graduates of the University, \$40; for community clients, \$65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.

THE SPEECH AND HEARING CLINIC

The Speech and Hearing Clinic, Suite 804, Joseph Henry Building, 2100 Pennsylvania Avenue, N.W., offers diagnostic and remedial work for children and adults with such communication difficulties as stuttering, lisping, cleft palate speech, cerebral palsied speech, and voice, articulatory, and hearing problems. Diagnostic and remedial work is also available for persons with nonstandard language usage due to such conditions as hearing loss, brain damage, mental retardation, and environmental factors.

Fees.—The fee for an initial evaluation is \$20. Fees for additional specialized testing are dependent on the testing involved. The fees for individual speech or hearing therapy range from \$3 to \$10 a session. Fees are reduced for full-time students enrolled in the University and for persons receiving group therapy. Fees are payable at the Office of the Cashier.

VETERANS EDUCATION

The Office of the Registrar, Luther Rice Hall, 2121 Eye Street, N.W., assists students entitled to educational benefits as veterans or war orphans with any problems which may arise concerning their benefits. This Office also processes certification of enrollment and attendance to the Veterans Administration so that monthly allowances will be paid.

When feasible, students entitled to benefits as veterans or war orphans should consult the Office of the Registrar prior to submitting application to the Veterans Administration. All such students should obtain the instruction sheet issued by the Office of the Registrar, which sets forth requirements to be fulfilled before certification of enrollment can be made to the Veterans Administration, and which includes other information of general interest.

The Veterans Administration is at 2033 M Street, N.W., Washington, D.C. 20421.

VETERANS' READJUSTMENT BENEFITS ACT (CHAPTER 34, TITLE 38, U.S. CODE)

A veteran who has served on active duty after January 31, 1955, or a person who is currently on active duty may be eligible for as much as 36 months of educational assistance under this act. Applications should be submitted to the Veterans Administration prior to registration.

WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT (CHAPTER 35, TITLE 38, U.S. CODE)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces, or a child of a person who has a permanent total disability resulting from such service, or a child of a person who died as a result of such a disability may be eligible for educational assistance under this act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

VOCATIONAL REHABILITATION (CHAPTER 31, TITLE 38, U.S. CODE)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

RESIDENCE HALL

Men, women, and married couples (no children) will be housed in Thurston Residence Hall, 1900 F Street, N.W. This is a modern, air-conditioned building.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance.

All unmarried freshman men and women and sophomore women under the age of 21 who are enrolled for six or more hours of academic work during a summer session are required to live in the University Residence Hall or at home with their parents or guardians. In exceptional cases permission to live elsewhere may be granted by the Director of Housing.

RESIDENCE HALL RATES FOR 1968 SUMMER SESSIONS*

	<i>Double Occupancy</i>	<i>Single Occupancy</i>
Monthly	\$65.00	\$95.00
Weekly	17.50	25.00
Daily	5.00	5.00
Each regular 5-week Session.....	80.00	117.50

Residence hall payments are due and payable in advance. A student who fails to meet payment is subject to automatic suspension.

Forms for application, together with detailed information, may be obtained from the Director of Housing.

Information concerning off-campus housing near the University is available at the Office of the Director of Housing.

STUDENT UNION

The Student Union, 2125 G Street, N.W., is the center for student life. From the cafeteria on the first floor to the reading room on the fourth floor, it is well planned to meet the students' need for meals, study, recreation, and activities. In addition to the recreation lounge and social lounge the Student Union provides office space for the Student Council and the other major student organizations.

The Student Activities Office, in the Student Union Annex, has information concerning the student organizations and campus events.

STUDENT AND ALUMNI CAREER SERVICES OFFICE

The Student and Alumni Career Services Office, Woodhull House, 2033 G Street, N.W., provides assistance to degree candidates and alumni seeking full-time, part-time, temporary, or permanent employment.

The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which private companies, government agencies, service organizations, public school systems, and universities participate. Prospective teachers may establish permanent credentials files in the Student and Alumni Career Services Office. This service includes files for alumni seeking college and university faculty and administrative positions. The Office also provides individual counseling for students and alumni wishing career guidance.

The Office is open from 9:00 a.m. to 5:00 p.m., Monday through Friday.

SOCIAL AND RECREATIONAL PROGRAM

The social and recreational program includes many varied activities and scheduled events. In addition to this campus program a great abundance of cultural as well as social and recreational opportunities is available to persons living in the metropolitan area. During the summer the University posts a weekly guide to all these on a bulletin board in the Student Union.

* The rates include linen service

THE COLLEGES, SCHOOLS, AND DIVISIONS

INFORMATION CONCERNING SPECIFIC REQUIREMENTS for degrees is omitted from this catalogue. For such information, the student is referred to the catalogue of the school concerned.

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Incoming liberal arts and science freshmen and all transfer students of less than junior class standing are registered in the lower division of Columbian College of Arts and Sciences. The lower division also provides the first two years of the prelegal and premedical programs; the preprofessional work required for admission to the School of Education, the School of Government and Business Administration, the School of Public and International Affairs; and a two-year terminal curriculum in Accounting. The lower division is primarily concerned with providing (1) the personal and academic guidance needed by beginning college students and (2) the broad cultural foundations in language and literature, science, and social studies on which major field specialization in the upper division is built.

The upper division of Columbian College offers programs leading to Bachelor's degrees in the liberal arts and sciences.

THE DEGREES

Columbian College offers work leading to the following degrees: Associate in Arts, Bachelor of Arts, and Bachelor of Science. In cooperation with the School of Medicine, Columbian College offers work leading to the combined degrees of Bachelor of Arts and Doctor of Medicine. In cooperation with the Department of Pathology and the University Hospital, Columbian College offers work leading to the degree of Bachelor of Science in Medical Technology.

ENTRANCE REQUIREMENTS*

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units which must include four years of English:

* Entrance requirements are established by the faculties of the several colleges, schools, and divisions.
The Office of Admissions, as agent for the faculties, administers regulations governing admission, readmission, and transfer.

at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

2. The principal's statement that the applicant is prepared to undertake college work.

3. College Entrance Examination Board scores, which must be submitted on the Scholastic Aptitude Test, the English Composition Achievement Test, and two additional achievement tests in subjects reflecting the applicant's major interests.

A person who does not present all of the formal requirements stated above may request the Office of Admissions to present his case to the Columbian College Committee on Admission and Advanced Standing. The Committee may prescribe appropriate tests.

The applicant is responsible for:

- a. Sending the report form obtained from the Office of Admissions to his principal who will complete the form and forward it directly to the Office of Admissions.
- b. Requesting a report of scores on the Scholastic Aptitude Test and the achievement tests to be sent to the Office of Admissions by the Educational Testing Service, 20 Nassau Street, Princeton, N.J. 08540, or 1947 Center Street, Berkeley, Calif. 94704. Write directly to the Board for information as to testing dates, fees, and center locations.

MAJOR FIELDS

Curricula leading to the degree of Bachelor of Arts are available in the following major fields:

American Thought and Civilization
 Anthropology
 Applied Statistics
 Art History and Theory
 Biology
 Botany
 Chemistry
 Classical Archeology and Greek
 Dramatic Art
 Economics
 English Literature
 Fine Arts
 French Language and Literature
 Geography
 Geology
 Germanic Languages and Literatures
 History
 Journalism
 Latin

Latin American Studies
 Mathematical Statistics
 Mathematics
 Music:
 Music History and Literature
 Music Theory
 Applied Music
 Philosophy
 Physics
 Political Science
 Psychology
 Religion
 Russian Language and Literature
 Sociology
 Spanish American Literature
 Spanish Language and Literature
 Speech
 Speech Pathology and Audiology
 Zoology

Curricula leading to the degree of Bachelor of Science are available in the following major fields:

Applied Statistics
Biology
Botany
Chemistry
Geology

Mathematical Statistics
Mathematics
Physics
Zoology

THE GRADUATE SCHOOL OF ARTS AND SCIENCES

The Graduate School offers work leading to the following degrees: Master of Arts, Master of Fine Arts, Master of Music, Master of Science, and Doctor of Philosophy. In cooperation with the School of Medicine, the Graduate School offers work leading to the combined degrees of Master of Science and Doctor of Medicine. Only a limited number of graduate courses in arts and sciences are offered during the Summer Sessions.

ENTRANCE REQUIREMENTS

The entering graduate student must have an approved Bachelor's degree from an accredited higher institution, an appropriate distribution of courses, and a superior quality of work in the major field.

GRADUATE FIELDS

Subject	Degrees Offered
I. Humanities	
American Literary and Cultural History	A.M.
American Literature	Ph.D.
American Thought and Culture	Ph.D.
Art:	M.F.A.
Ceramics	
Graphics	
Painting	
Sculpture	
Art History and Criticism	A.M.
Dramatic Art	M.F.A.
English and American Literature	A.M.
English Literature	A.M. Ph.D.
French Language and Literature	A.M. Ph.D.
Germanic Languages and Literatures	A.M. Ph.D.
Linguistics	A.M.
Museology	A.M.
Music:	A.M.
Applied Music	Mus.M.
Conducting	
Music Composition	
Music Theory	
Musicology	A.M.
Philosophy	A.M.
Religion	A.M.
Religious Education	A.M.
Russian Language and Literature	A.M.
Spanish American Literature	A.M.
Spanish Language and Literature	A.M. Ph.D.

II. Social Sciences

Anthropology	A.M.	
Economics	A.M.	Ph.D.
Geography	A.M.	
History	A.M.	Ph.D.
*International Relations		Ph.D.
Latin American Studies	A.M.	
Political Science	A.M.	Ph.D.
Sociology	A.M.	Ph.D.

III. Physical and Mathematical Sciences

Applied Statistics	M.S.	
Chemistry	M.S.	Ph.D.
Geochemistry	M.S.	Ph.D.
Geology	A.M., M.S.	Ph.D.
Mathematical Statistics	A.M.	Ph.D.
Mathematics	A.M.	Ph.D.
Physics	A.M.	Ph.D.

IV. Biomedical and Related Sciences

Anatomy	M.S.	Ph.D.
Biochemistry	M.S.	Ph.D.
*Biological Sciences	M.S.	Ph.D.
Biophysics		Ph.D.
Human Ecology		Ph.D.
Microbiology	M.S.	Ph.D.
Pathology		Ph.D.
Pharmacology	M.S.	Ph.D.
Physiology	M.S.	Ph.D.
Psychology	A.M.	Ph.D.
Speech Pathology and Audiology	A.M.	

THE NATIONAL LAW CENTER

The National Law Center offers work leading to the degrees of Bachelor of Laws, Master of Laws, Master of Comparative Law, Master of Comparative Law (American Practice), and Doctor of Juridical Science.

Forms for application for admission may be obtained from the Office of the Dean of the National Law Center, 720 Twentieth Street, N.W., Washington, D.C. 20006.

Applications should be accompanied by an application fee of \$25 for a degree candidate, \$5 for an unclassified student. Two recent signed photographs must accompany the application for a degree candidate.

See "Registration," page 15, for provisions applicable to students who plan to take the New York Bar examination.

ENTRANCE REQUIREMENTS

Unclassified Students.—The following types of students may be admitted to the National Law Center as Unclassified Students:

* The School of Public and International Affairs offers a Master of Arts field in International Affairs.

† Biology, Botany, and Zoology.

1. A candidate for a Bachelor of Laws degree with an above-average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association, may, at the discretion of the Dean, be admitted as an Unclassified Student to earn credits for transfer to the other law school.

2. Graduates of law schools which are members of the Association of American Law Schools or are approved by the American Bar Association who wish to take advanced courses without pursuing degree programs. Applicants with inferior records will not be admitted.

Unclassified Students participate in the work of the course, take examinations, and have their grades recorded. Credit earned as an Unclassified Student cannot be credited toward a degree at this institution.*

For the Degree of Bachelor of Laws.—Students from other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association may apply for transfer to this Law Center with advanced standing. No new students are admitted as candidates for the degree of Bachelor of Laws in the summer term.

For the Degree of Master of Laws.—A Bachelor's degree from an accredited college or university† and a Bachelor of Laws or equivalent degree from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. The applicant must demonstrate (by a B average or equivalent performance measure, high class standing, Law Review experience, positions held, or professional achievements) that he is capable of Master's level work. Advanced standing is not granted for credits earned while a candidate for the first degree in law.

For the Degree of Master of Comparative Law and Master of Comparative Law (American Practice).—The following are required: (1) the successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or liceo; and (2) graduation in law from a recognized foreign university.

For the Degree of Doctor of Juridical Science.—A Bachelor of Arts or equivalent degree from an approved college or university‡; a Bachelor of Laws or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association, outstanding capacity for scholarly work in the field of law; and faculty approval of the applicant's dissertation topic. The applicant must submit an outline of his proposed topic in some detail, indicating by chapter and division within chapter the exact scope of the project. There should be a bibliography for each chapter listing books, reports, cases, and Law Review articles to be considered. Although the outline cannot predict every detail of the subsequent research, it must be sufficiently definite to afford the faculty a basis for evaluation.

Continuing Legal Education Students.—A simplified admission and registration procedure is used for members of the bar who wish to take courses on a noncredit basis.

*The Dean is authorized to make exceptions in appropriate cases for Master's and doctoral students.

†The Dean is authorized to make exceptions in appropriate cases.

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE

The School of Engineering and Applied Science offers courses leading to the degree of Bachelor of Science in the following areas: Civil Engineering, Electrical Engineering, Measurement Science, and Mechanical Engineering. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

ENTRANCE REQUIREMENTS FOR THE BACHELOR'S DEGREES

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited high school showing at least fifteen units*;
2. The principal's statement that the applicant is prepared to undertake college work;
3. Scores on the following College Entrance Examination Board tests: the Scholastic Aptitude Test, the English Composition Achievement Test, and a Level I (Standard) or Level II (Intensive) Mathematics Test—Level I preferred;
4. Evidence from the high school grades that the applicant can achieve satisfactorily in formal study;
5. Evidence in reference letters, requested by the applicant, as to the applicant's motivation toward engineering and applied science, and his seriousness of purpose.

The qualifications of applicants who, because of unusual circumstances, do not meet the above requirements will be considered by the School, which may prescribe admission tests.

Nine and one-half of the fifteen units required for entrance must be distributed as follows: three in English, two in algebra, one in plane geometry, one-half in plane trigonometry, one in physics or chemistry, and two in one foreign language or history. General science may not be counted in satisfaction of the science requirement but may be counted as an elective unit.

It is recommended that both physics and chemistry be studied in high school. A high school course in solid geometry is recommended as a firm foundation for college mathematics.

The applicant is responsible for:

- a. Sending the report form obtained from the Office of Admissions to his principal who will complete the form and forward it directly to the Office of Admissions.
- b. Requesting a report of scores on the Scholastic Aptitude Test and the achievement tests to be sent to the Office of Admissions by the Educational Testing Service, 20 Nassau Street, Princeton, N.J. 08540, or 1947 Center Street, Berkeley, Calif. 94704. Write directly to the Board for information as to testing dates, fees, and center locations.

Quantitative Deficiency.—A graduate of an approved high school who lacks not more than two units of the required subjects and who presents fifteen acceptable units may be admitted to a prescribed program which includes courses to make up his deficiencies.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods of prepared classroom work.

ENTRANCE REQUIREMENTS FOR THE MASTER'S DEGREES

Admission to Graduate Study.—An appropriate Bachelor's degree from a recognized institution and evidence of capacity for productive work in the field selected, as indicated by undergraduate grades, Graduate Record Examination scores, and similar data. *Admission to graduate study does not admit the student to degree candidacy.*

Admission to Degree Candidacy.—Applicants are admitted initially to graduate-student status. During this initial period the student must satisfy all prerequisite requirements, but may also take a limited number of courses for credit toward the Master's degree. *Application for degree candidacy must be made immediately following the first semester in which he satisfactorily completes the third of his graduate level courses which are to be used for credit toward the Master's degree.*

ENTRANCE REQUIREMENTS FOR THE DOCTOR'S DEGREE

The applicant must have adequate preparation for advanced study, including a satisfactory Master's degree, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Well in advance of the opening of the semester for which the student seeks admission, he should correspond with and preferably have a personal interview with the Dean or department chairman of his proposed field of study, to discuss the University's facilities for guidance in this field, the applicant's qualifications, and the possibilities of an effective doctoral program.

THE SCHOOL OF EDUCATION

The School of Education prepares teachers, counselors, and administrators for the higher ranges of educational service and offers opportunities to teachers of experience to extend their education. The schedule of courses is arranged to meet the needs of employed students as well as those able to devote full time to their studies. Students pursuing programs involving teacher certification must make provision to student-teach in the fall or spring semester during hours when public schools are in session. It offers both graduate and undergraduate work.

THE DEGREES

The School of Education offers work leading to the following degrees: Bachelor of Arts in Education, Bachelor of Science in Physical Education, Master of Arts in Education, Education Specialist, and Doctor of Education.

ENTRANCE REQUIREMENTS

For the Bachelor's Degrees.—The satisfactory completion of two years of approved college work, or graduation from an approved two-year normal school, or the equivalent, is required.

For the Master's Degree.—A Bachelor's degree from an accredited college, or the equivalent, a score on a required aptitude examination, and the approval of the Committee on Admission and Advanced Standing are required.

For the Degree of Education Specialist.—The degree of Master of Arts in Education from this University, or the equivalent; a satisfactory score on the Miller Analogies Test or the Graduate Record Examination; and two years of successful pertinent experience. Each applicant must be interviewed and recommended by a staff member of the School of Education or by a representative in the candidate's locality appointed by the Dean.

For the Doctor's Degree.—The applicant must have adequate preparation for advanced study, including graduate work in fields prerequisite to his objective equivalent to that required for the degree of Master of Arts in Education at this University, at least three years of successful pertinent educational experience, acceptable personal qualities, and capacity for creative scholarship and effective leadership.

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

The School of Government and Business Administration offers work leading to the following degrees: (1) Bachelor of Business Administration with a major in Accounting, Business Administration, Business and Economic Statistics, or International Business; (2) Master of Arts in Government in the fields of Business and Economic Statistics, Personnel Administration, Public Administration, or Urban and Regional Planning; (3) Master of Business Administration in the fields of Accounting, Business Administration, Health Care Administration, International Business, or Personnel Administration; (4) Master of Public Administration in the fields of Health Care Administration, Personnel Administration, Public Administration, or Urban and Regional Planning; (5) Master of Urban and Regional Planning; (6) Graduate Certificate in Health Care Administration (post-Master's study); (7) Doctor of Business Administration; and (8) Doctor of Public Administration.

ENTRANCE REQUIREMENTS FOR THE BACHELOR'S DEGREE

Bachelor of Business Administration.—The satisfactory completion of the *Accounting, Business Administration, and International Business*; or the *Business and Economic Statistics* curriculum in the lower division of Columbian College of Arts and Sciences; or the equivalent.

ENTRANCE REQUIREMENTS FOR THE MASTER'S DEGREES

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (*B* average) in the relevant undergraduate field, is required. Applicants for admission to all Master's degree programs are required to take either the Admission Test for Graduate Study in Business or the aptitude sections of the Graduate Record Examination, both of which are administered by the Educational Testing Service. Master of Business Administration applicants must submit scores on the Admission Test for Graduate Study in Business; Master of Arts in Government applicants must submit scores on the Graduate Record Examination; Master of Public Administration or Master of Urban and Regional Planning applicants may submit scores on either the Admission Test

for Graduate Study in Business or the Graduate Record Examination. Any test scores submitted must have been earned within three years of the date of application.

ENTRANCE REQUIREMENTS FOR THE DOCTOR'S DEGREES

Doctor of Business Administration.—The degree of Master of Business Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Applicants must file results of the Admission Test for Graduate Study in Business administered by the Educational Testing Service.

Doctor of Public Administration.—The degree of Master of Public Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Applicants must file results on either the Admission Test for Graduate Study in Business or the aptitude sections of the Graduate Record Examination administered by the Educational Testing Service.

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

The School of Public and International Affairs offers work leading to the degrees of Bachelor of Arts with a major in International Affairs or Public Affairs, Master of Arts in the field of International Affairs or Public Affairs, and the Certificate of the Institute for Sino-Soviet Studies.

ENTRANCE REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

With a major in International Affairs or Public Affairs.—The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences, or the equivalent.

ENTRANCE REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

A Bachelor's degree from an accredited college or university is required. Students admitted to candidacy must have attained a quality-point index of 3.00 (a B average) in the relevant undergraduate fields.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

THE COLLEGE OF GENERAL STUDIES

The College of General Studies administers the Off-Campus educational programs of the University through Conferences, Seminars, Special Projects, Continuing Education, Noncredit and Credit programs. This College administers the off-campus degree programs of (1) Bachelor of Science in General Studies (areas of concentration in history, mathematics, political science, psychology).

Bachelor of Science in Geodetic and Cartographic Science, and Bachelor of Science in Oceanography, over which the Faculty of Columbian College of Arts and Sciences has academic jurisdiction; (2) Bachelor of Science in General Studies (areas of concentration in accounting and business administration), Master of Science in Administration, Master of Science in Business Administration, Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in Personnel Administration, Master of Science in Public Administration, over which the Faculty of the School of Government and Business Administration has academic jurisdiction; and (3) Master of Science in International Affairs, over which the Faculty of the School of Public and International Affairs has academic jurisdiction.

ENTRANCE REQUIREMENTS

Off-Campus Credit Courses.—A simplified procedure is used for admission and registration in off-campus courses. Transcripts of previous academic work are not required. Registration is restricted to those whose qualifications would indicate that they are able to carry the course successfully. Registration in an off-campus course does not constitute admission to degree candidacy in the University.

Noncredit Courses.—In general, noncredit courses will be open to any individual interested in enrolling. When a noncredit course is organized at the request of some particular agency or group, admission may be restricted to the students recommended by the sponsoring organization. A limit on the size of classes may have to be imposed in order to maintain the quality of instruction.

The separate catalogue of the College of General Studies, available at the College, 706 Twentieth Street, N.W., Washington, D.C. 20006, contains full information concerning programs, courses, entrance and degree requirements, and fees.

THE DIVISION OF UNIVERSITY STUDENTS

The Division of University Students makes the work of the University, in its several colleges and schools, accessible to five types of students who are not working toward a degree in this University (see page 14).

SPECIAL PROGRAMS AND WORKSHOPS

THE SUMMER SESSIONS is pleased to announce a carefully planned group of special programs and workshops devised to serve a variety of student needs and to utilize resources which are uniquely present at the University and in the Nation's Capital. These programs, which are described below, have been developed in the area of the humanities and in the area of social studies. They all have a strong academic orientation and will be taught by the regular faculty of the University or distinguished visitors from other institutions.

American Studies

SECOND SESSION

OFFERED JOINTLY by the University and the Smithsonian Institution, this Institute will combine lectures, orientation in material culture at the Smithsonian, field study in the Washington area, and individual study and research projects. Units of study will include topography and environment, economics, transportation, and communications; city planning, parks; architecture, monuments; federal local politics; social relationships; intellectual life; the fine arts; the sciences—pure and applied.

There will be group field study of Capitol Hill, the Washington park system, selected metropolitan and suburban neighborhoods, art galleries, and libraries. Emphasis in presentation of material will be upon likely areas for student field work, study, and research. Graduate students will register for seven hours, and will undertake a research project. The Institute requires the full day; concurrent registration for another course is not permitted.

A descriptive brochure is available upon request from Associate Professor Clarence C. Mondale, Director, Summer Institute in American Studies, Stuart Hall, The George Washington University.

AMERICAN THOUGHT AND CIVILIZATION

196 Summer Institute in American Studies (6 or 7) Mondale and Staff

An interdisciplinary investigation of the emergence of Washington as the national capital offered jointly by the University and the Smithsonian Institution. Second Session: MTWThF. As arranged.

Communist Affairs

THE INSTITUTE FOR SINO-SOVIET STUDIES is again offering a program of related courses focused on the theory of communism and its political operation in Eastern Europe and Asia. These courses are broad enough to have general appeal as electives for the liberal arts student and sufficiently specific to have vocational utility for the teacher of social studies. Regular faculty members will offer seven courses in this program, three in the first session and four in the second. Each course carries 3 semester hours of credit. Students majoring in Political Science should consult with their advisers before registering for this work.

The following faculty will staff the courses in this program:

Andrew Gyorgy, *Professor of International Affairs*

Franz Michael, *Professor of International Affairs*

William R. Johnson, *Associate Professor of History*

Richard C. Thornton, *Assistant Professor of History*

FIRST SESSION—JUNE 17 TO JULY 24

HISTORY

138 History of the Comintern (3)

The Communist Third International from the First World War to the present in relation to Russian and world communist movements. Thornton
MTWThF 4:10–5:30 pm.

208 Seminar: History of the Comintern (3)

The Communist Third International: its sponsorship of revolution, its decline, its subservience to the Soviet State. Thornton
MWF 6:10–8 pm.

POLITICAL SCIENCE

101 Far East in the Modern World (3)

General character of Far Eastern societies and their response to the impact of America, Europe, and Russia. American policy in Far East and influence of world communism. Michael
MTWThF 8:10–9:30 am.

SECOND SESSION—JULY 25 TO AUGUST 30

HISTORY

187 History of Modern China (3)

China since 1840, particular attention to political developments. Johnson
ThF 9:40–11 am.

396 Readings in Modern Far Eastern History (3)

MWF 6:10–8 pm. Johnson

POLITICAL SCIENCE

115 Government and Politics in Eastern Europe (3)

Study of contemporary social and ethnic structures, governmental systems, and international position of East European satellites. Emphasis on post-Gyorgy

World War II political evolution and present status of Soviet satellite nations. MTWThF 11:10 am-12:30 pm.

160 Modern Communist Ideologies (3)

Gyorgy

Intensive study of 20th century communism; emphasis on its antecedents and possible evolution. Backgrounds, careers, and ideas of leading communist figures: Marx, Lenin, Stalin, Khrushchev, and Mao. MTWThF 2:10-3:50 pm.

Dance Workshop

JUNE 17 TO JULY 5

THE DEPARTMENT of Physical Education, Health, and Recreation for Women is again offering, under the direction of Associate Professor Maida Withers, a 3-week Modern Dance Workshop featuring a guest artist. At the conclusion of the workshop, performances of student compositions and repertory will be presented in the University's theater. This coeducational program will be open both to graduate and undergraduate students with previous experience in dance technique and a background in dance composition. From 1 to 3 semester hours of credit may be earned in this program or courses may be audited. Graduate credit in the program may be arranged.

Additional information may be obtained from Associate Professor Maida Withers, Building J, The George Washington University.

PHYSICAL EDUCATION

***†56 Dance Technique and Theory (1)**

Advanced work in the techniques of contemporary modern dance. Prerequisite: the introductory and intermediate dance electives offered in Physical Education 1-2 and 11-12, or equivalent. Students who have received credit for former Physical Education 53 may not receive credit for 56. Physical Education fee, \$4.50. MTWThF 9:40-11 am.

***110 Dance Composition II (1)**

Advanced problems in composition. Students who have received credit for former Physical Education 53 may not receive credit for 110. MTWThF 1:10-2:30 pm.

***120 Repertory (1)**

Study and performance of completed dance works. Admission by permission of instructor. MTWThF 3-4 pm.

Institute on Government and Business Relations

JULY 28 TO AUGUST 9

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION is offering under the direction of Professor Edwin Timbers a two-week institute to stimulate a

* May be repeated once for credit.
† Class begins June 18.

meaningful and searching dialogue on the growing interrelationship of the Federal Government and American business. The Institute's enrollment will be limited to thirty participants representing the American business community.

Detailed information concerning this program may be obtained from Edwin Timbers, Director, Institute on Government and Business Relations, Hall of Government, The George Washington University.

Language Study in Paris

JULY 23 TO SEPTEMBER 9

THE GEORGE WASHINGTON UNIVERSITY, in conjunction with the American College in Paris, inaugurates this summer a six and one-half week language program in Paris led by a member of the Department of Romance Languages and Literatures. The program will include intensive training in grammar, composition, and conversation and a series of lectures on French culture and civilization. The program will begin with an eleven-day tour of parts of France, Germany, Switzerland, and the Low Countries, followed by five weeks of classes in intensive language study at the American College.

Prerequisite: one year of college French with grades of *B* or better.

Detailed information concerning admission to this program should be obtained from the office of Assistant Dean Joseph L. Métivier, Jr., Monroe Hall, The George Washington University.

AMERICAN COLLEGE COURSES

Intensive French (5)

Elementary, intermediate, or advanced French—18 hours per week. Language practice—5 hours per week.

French Culture and Civilization (1)

Lectures on French history, literature, and civilization. Visits to museums and places of historical and cultural interest in and around Paris.

Workshop in Producing Shakespeare

JUNE 17 TO AUGUST 30*

SPEECH AND DRAMA

157 Workshop in Producing Shakespeare (2)

Participation as an apprentice in minor role or technical work with an Equity Company in the Shakespeare Summer Festival production in the outdoor Sylvan Theatre at the Washington Monument. Hours arranged with Company rehearsals and performances. Registration limited. Application must be made by May 15. (For detailed information write Shakespeare Summer Festival, Room 909, 1010 Vermont Ave., N.W., Washington, D.C. 20005.)

* Dates subject to change.

Secondary School Honors Program

THE OUTSTANDING SECONDARY SCHOOL STUDENT who wishes to enrich his academic background and participate in a stimulating introduction to college work is encouraged to seek admission to The George Washington University's Secondary School Honors Program. The Honors Student is enrolled in regular college courses of his own choosing appropriate to his level of study, his background, and his aptitude as determined through consultation with his high school counselors and advisers at the University.

Since dormitory life is a vital part of the stimulating academic and cultural atmosphere of the campus and community, Honors Students will normally live in Thurston Hall, a modern, air-conditioned residence dormitory. Students from the immediate metropolitan area may commute, but they are encouraged to reside in the dormitory. Honors Students living in the dormitory are supervised by well-trained resident counselors. A varied extracurricular program focusing upon the unique location of the University in the Nation's Capital has been planned to complement both the academic and social life of the campus.

Credit earned in the Program is applicable toward a degree at The George Washington University should the student later matriculate here. The transfer of credit elsewhere depends upon the policies of the individual school to which the student might later apply.

All students admitted to the Program are appointed Scholars in the Secondary School Honors Program and receive scholarships for the five-week session. Resident students receive a scholarship of approximately \$200 and pay only \$400 covering full tuition, board, and room. Commuting students receive a \$50 scholarship for each 3- or 4-hour course. The Program is designed to include a normal summer session of two courses.

Since the Honors Program is limited to 120 secondary school scholars, admission is competitive. A transcript of the applicant's grades to date, available test scores, and evidence of emotional and intellectual maturity are criteria for admission.

Application forms and further information may be obtained from Miss Jean M. Gladding, Director of the Secondary School Honors Program, Division of University Students, The George Washington University, Washington, D.C. 20006.

No applications will be considered after May 1.

COURSES OF INSTRUCTION

EXPLANATION OF COURSE NUMBERS

COLLEGES AND SCHOOLS OTHER THAN ENGINEERING AND APPLIED SCIENCE

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the Dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered from 201 to 300 (in the Graduate School of Arts and Sciences, the School of Government and Business Administration, and the School of Public and International Affairs), courses numbered 201 to 400 (in the School of Education) are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified seniors; they are not open to other undergraduates.

Fourth-group courses.—Courses numbered 301 to 400 in the Graduate School of Arts and Sciences are limited to graduate students; but they are primarily for doctoral candidates. In the School of Education fourth-group courses, numbered 401 to 500, are limited to graduate students with Master's degrees from accredited institutions.

ENGINEERING AND APPLIED SCIENCE

Courses numbered from 1 through 199 are planned for undergraduate credit; certain courses may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean; those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

SEMESTER HOURS OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is in most cases indicated in parentheses after the name of the course.

The Schedule of Classes for the Summer Sessions, which will be available in April at the Office of the Registrar, will contain information about room assignments and instructors for courses.

The University reserves the right to change or withdraw any of the following courses.

Accounting

E.J.B. Lewis, *Chairman*

1-2 Introductory Accounting (3-3)

Preparation, uses, and limitations of financial reports. Accounting 1: basic financial reporting concepts and data accumulation and processing. Accounting 2: introduction to managerial accounting—financial programming, cost determination, and analysis of financial statements. Accounting 1 is prerequisite to Accounting 2. **First Session:** Accounting 1A—MTWThF 9:40-11 am; Accounting 1B—MTWThF 6-7:20 pm. **Second Session:** Accounting 2—MTWThF 6-7:20 pm.

101 Cost Accounting (3)

Theory and purposes of industrial cost accounting, systems of cost control and determination, analysis and interpretation of cost data. Prerequisite: Accounting 1-2. **An 8-week course, June 18 to August 9: MWF 6-7:30 pm.**

***115 Survey of Accounting (3)**

Preparation, uses, and limitations of financial information in the management process. Not open for credit to accounting majors. **First Session:** Section A—MTWThF 6-7:20 pm. **Second Session:** Section C—MTWThF 7:30-8:50 pm.

132 Accounting Theory (3)

Development of basic accounting principles and concepts, review of current thought as reflected in the pronouncements of leading professional and accounting research associations, major contributions to accounting literature. Prerequisite: 6 semester hours of accounting. **Second Session:** MTWThF 6-7:20 pm.

193 Business Budgeting (3)

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. **First Session:** MTWThF 6-7:20 pm.

* A special section of this course, Accounting 115B, for students in the Navy Graduate Financial Management Program, will be offered June 3 to July 26; hours to be arranged.

***215A Survey of Managerial Accounting (3)**

Nature, preparation, analysis, and interpretation of accounting reports; cost accounting, business budgeting, and internal accounting controls and their use in the management process. Prerequisite: Accounting 1-2 or 115 or permission of instructor. Second Session: MWF 6:10-8 pm.

276 Management Planning and Control (3)

Theories and techniques of cost accounting and budgetary planning and control, with emphasis on: the relation of planning and control systems to corporate and departmental objectives, control of decentralized operations and discretionary costs, long-range planning and control. Prerequisite: Accounting 101 and Business Administration 102 or Business and Public Administration 201, or permission of instructor. An 8-week course, June 18 to August 9: MF 8:10-10 pm.

297 Accounting Reading and Research (3)

May be repeated once for credit. Both sessions: as arranged.

299 Thesis Seminar (3)

First Session: as arranged.

300 Thesis Research (3)

Second Session: as arranged.

American Thought and Civilization

Administered by the Department of English, J.P. Reesing, Jr., *Chairman*

196 Summer Institute in American Studies (6 or 7)

Second Session: MTWThF. As arranged. (See American Studies program, page 33.)

Anthropology†

P.F. Gallagher, *Chairman*

†1-2 Introductory Anthropology (3-3)

Anthropology 1: survey of man's origin, physical evolution, and culture history. *Anthropology 2:* survey of the world's cultures, illustrating the principles of cultural behavior. First Session: Anthropology 1—MTWThF 9:40-11 am; Anthropology 2—MTWThF 1:10-2:30 pm.

153 Psychological Anthropology (3)

Relevance of psychoanalytic theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. Second Session: MTWThF 9:40-11 am.

* A special section of this course, Accounting 215B, for students in the Navy Graduate Financial Management Program, will be offered July 29 to September 6.

† Anthropology 1-2 is prerequisite to all second-group courses.

299-300 **Thesis Research (3-3)**

Both sessions: as arranged.

Applied ScienceH.E. Smith, *Acting Dean***59 Introductory Analytical Mechanics I (4)**

Mechanics of particles and rigid bodies; virtual work, energy, and momentum principles. Deformable body mechanics; stress and strain concepts; bending, twisting, and buckling of slender beams. Prerequisite or concurrent registration: Applied Science 113. An 8-week course, June 18 to August 9; MW 6:10-9:30 pm.

85 Thermodynamics (3)

Fundamental concepts from classical and statistical viewpoints. Basic laws and their application to simple systems. Introduction to kinetic theory, probability theory, and partition functions. Prerequisite: Applied Science 59. An 8-week course, June 18 to August 9; TTh 4:10-6:40 pm.

113 Engineering Analysis I (3)

Use of ordinary and partial differential equations, linear algebra, Fourier series, Laplace transformation, and complex variables in the solution of engineering problems. Prerequisite: Mathematics 24 or 28. An 8-week course, June 18 to August 9; MW 1:10-3:40 pm.

115 Engineering Analysis III (3)

Solution of engineering problems using sets and functions; probability models; distributions and functions; statistical concepts and methods, including hypothesis testing, correlation, and regression. Prerequisite: Mathematics 24 or 28. An 8-week course, June 18 to August 9; TTh 6:10-8:40 pm.

198 Undergraduate Projects (3)

Design or research projects. An 8-week course, June 18 to August 9; as arranged.

211 Mathematical Methods in Applied Science I (3)

Methods and theory of functions of complex variables and partial differential equations and their application. May be taken concurrently with Applied Science 212. Prerequisite: graduate status. An 8-week course, June 18 to August 9; MW 6:10-8:40 pm.

273-74 Communication Theory I-II (3-3)

Time-domain analysis, waveform analysis, ideal filters, signal distortion, sampling theorems, analytic signals, signal comparison. Random variables and probability distributions, random processes, ensemble average correlation and power spectra, ergodicity, linear systems with stochastic inputs, filtering and prediction of stationary time series, modulation with random processes, nonlinear devices, statistical detection of signals. Prerequisite: Applied Science 211. First Session: Applied Science 273; Second Session: Applied Science 274. TTh 6:10-9:50 pm.

298 **Research (3)**

Basic research projects. An 8-week course, June 18 to August 9: as arranged.

Art

L.P. Leite, *Chairman*

ART HISTORY AND THEORY

1 **Art Appreciation (3)**

Language and function of art in its various media; development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. **First Session:** Section A; **Second Session:** Section B. MTWThF 1:10-2:30 pm.

31-32 **Survey of Western Art (3-3)**

Survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. **First Session:** Art 31; **Second Session:** Art 32. MTWThF 9:40-11 am.

71-72 **Introduction to the Arts in America (3-3)**

Painting, sculpture, and architecture of America, with selected references to crafts and popular arts. Art 71: from Colonial beginnings to the Republican Age. Art 72: from early 19th century to the present. **First Session:** Art 71; **Second Session:** Art 72. MTWThF 11:10 am-12:30 pm.

103 **Classical Iconography (3)**

Origin and development of myths in classical art. **First Session:** MTWThF 11:10 am-12:30 pm.

106 **Renaissance Art in the North I (3)**

Fifteenth century painting in the Netherlands, Germany, France, Spain, and Portugal. **First Session:** MTWThF 8:10-9:30 am.

108 **18th Century Art in Europe (3)**

Development of painting, sculpture, and architecture. **First Session:** MTWThF 9:40-11 am.

113 **Baroque Art in Italy (3)**

Development of painting, sculpture, and architecture in 16th and 17th century Italy. **Second Session:** MTWThF 9:40-11 am.

141 **Interior Decoration (3)**

Principles of decoration dealing with furniture designs and ensemble layout, draperies, color, accessories, and lighting. **First Session:** MTWThF 4:10-5:30 pm.

149 **19th Century American Sculpture (3)**

Second Session: MTWThF 8:10-9:30 am.

246 **Seminar: Classical Art (3)**

First Session: MTWThF 1:10-2:30 pm.

271-72 Museum Techniques (6-6)

Intern training in museum work. Prerequisite: Art 146. First Session: Art 271; Second Session: Art 272. As arranged.

289-90 Thesis Research (3-3)

Both sessions: as arranged.

FINE ARTS***†21-22 Basic Design I (3-3) CSA**

Fundamental studies of principles and elements of design. First Session: Art 21 and 22, MTWThF 1-4 pm.

41-42 Drawing I (3-3) CSA

Introductory course including traditional and contemporary techniques, mechanical and visual perspective. First Session: Art 41A and 42A, MTWThF 9-12 am; Art 41B and 42B, MTWThF 1-4 pm; Art 41C and 42C, MWF 6-9 pm, laboratory TTh as arranged.

51-52 Ceramics I (3-3) CSA

Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Laboratory fee: Art 51, \$25; Art 52, \$25. First Session: Art 51 and 52, MTWThF 1-4 pm.

61 Watercolor (3) CSA

Sketching as a basis for color composition; study of techniques and styles. First Session: MTWThF 9-12 am.

65-66 Painting I (3-3) CSA

Basic color composition and fundamental painting techniques. First Session: Art 65A and 66A, MTWThF 9-12 am; Art 65B and 66B, MTWThF 1-4 pm; Art 65C and 66C, MWF 6-9 pm, laboratory TTh as arranged.

81-82 Sculpture I (3-3) CSA

Armature building, clay and plaster modeling, casting techniques. Materials to be paid for as needed. First Session: Art 81 and 82, MTWThF 9-12 am.

124 Design: Individual Problems (3)

Emphasis on the individual student and the materials that specifically interest him in any area of design. Prerequisite: Art 121-22. Second Session: MTWThF 9-12 am.

125-26 Painting II (3-3) CSA

Development of basic concepts carried into personal statement. First Session: Art 125 and 126, MTWThF 1-4 pm.

* Courses designated CSA are taught at the Corcoran School of Art.

† Courses taught in studios at the University carry no material or laboratory fees; students must purchase their own materials. Material and laboratory fees for courses taught at the Corcoran School of Art are stated in the course description and are payable at the School.

* Art 21-22 or permission of Department Chairman is prerequisite to all other studio courses. Art 21-22 is required of all Fine Arts majors.

127-28 Painting III (3-3) CSA

Exploratory efforts in the development of style, using advanced methods and materials. **First Session:** Art 127 and 128, MTWThF 1-4 pm.

131-32 Ceramics II (3-3) CSA

Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming. **Laboratory fee:** Art 131, \$30; Art 132, \$30. **First Session:** Art 131 and 132, MTWThF 9-12 am.

***137 Workshop in Materials, Methods, and Techniques (3) CSA**

Drawing in charcoal, crayon, and pen; painting and preparation of grounds in tempera, encaustic, fresco buono, oil, watercolor, polymer, and mixed techniques; graphic techniques in woodcut, engraving, etching; modeling in clay and carving in wood and stone; mosaic. **Laboratory fee, \$10. First Session:** MTWThF 1-4 pm.

143-44 Serigraphy (3-3)

Advanced problems in serigraphy; emphasis on its aesthetic possibilities. **Prerequisite:** Art 57-58. **First Session:** Art 143, MTWThF 9-12 am; Art 144, MTWThF 1-4 pm.

153-54 Etching (3-3)

Prerequisite: Art 57-58. **Second Session:** Art 153, MTWThF 9-12 am; Art 154, MTWThF 1-4 pm.

157-58 Relief Printing (3-3) CSA

Relief printing and wood block, with special reference to Eastern techniques. Experiments with material printing. **Laboratory fee:** Art 157, \$15; Art 158, \$15. **First Session:** Art 157 and 158, MTWThF 9-12 am.

159-60 Drawing II (3-3) CSA

Special problems in anatomy of the life model in action and repose. **First Session:** Art 159 and 160—lecture MWF 6-9 pm, laboratory TTh as arranged.

163 Welding (3)

Special problems in welded sculpture. **Second Session:** MTWThF 1-4 pm.

171-72 Calligraphy and Lettering (3-3) CSA

Design and execution of finished lettering for reproduction, type, and layouts. **First Session:** Art 171A, MTWThF 1-4 pm; Art 171B and 172, MWF 6-9 pm, laboratory TTh as arranged.

179-80 Sculpture II (3-3) CSA

Three-dimensional compositions, bas-relief techniques. Basic principles of wood and stone carving. **First Session:** Art 179 and 180, MTWThF 9-12 am.

189-90 Sculpture III (3-3) CSA

Advanced problems in sculpture as related to architecture. **First Session:** Art 189 and 190, MTWThF 9-12 am.

265-66 Painting IV (3-3) CSA

First Session: Art 265 and 266, MTWThF 1-4 pm.

275 Painting V (3) CSA

First Session: MTWThF 1-4 pm.

279-80 Sculpture IV (3-3) CSA

First Session: Art 279 and 280, MTWThF 9-12 am.

281 Sculpture V (3) CSA

First Session: MTWThF 9-12 am.

299-300 Thesis Research (3-3)

Both sessions: as arranged.

Biological Sciences*

I.B. Hansen, *Chairman*

1-2 Introductory Biology (4-4)

Introductory course leading to all second- and third-group courses in biology, botany, and zoology; also provides the nonscience student with an understanding of the life sciences. Material fee, \$10 each session.

First Session: Biological Sciences 1; Second Session: Biological Sciences 2. Section A—MTWThF 9:40 am-1 pm; Section B—MTWThF 6-9:20 pm.

106 Field Botany—Lower Plants (3)

Primarily for nonspecialists, emphasizing algae, mosses, and ferns.

Second Session: MTWThF 9:40-11 am.

127 Genetics (4)

Introductory course dealing with both nuclear and nonnuclear organisms, covering the nature, transmission, and functioning of the genetic material. Material fee, \$8. First Session: lecture, MTWThF 6-7:20 pm; laboratory, MWF 7:30-9:30 pm.

143 Animal Ecology (4)

Laboratory fee, \$8. First Session: lecture, MTWThF 1:10-2:30 pm; laboratory, MWF 2:30-5 pm.

145 Introduction to Vertebrate Embryology (3)

Origin and early development of the individual, formation of organ systems. Emphasis on the frog, chick, and pig, with reference to the human embryo. Material fee, \$8. Second Session: MTWThF 6-8:50 pm.

295 Research (arr.)

Investigation of special problems. May be repeated for credit. Both sessions: as arranged.

299-300 Thesis Research (3-3)

First Session: Biological Sciences 299; Second Session: Biological Sciences 300. As arranged.

* Biological Sciences 1-2 is prerequisite to all second-group courses in Biology, Botany, and Zoology, except by permission of the instructor.

Business Administration

H.R. Page, *Chairman*

51 Introduction to Business (3)

The business environment; the structure, activities, and problems of business enterprise; its contribution to society; careers in business. **First Session:** MTWThF 1:10-2:30 pm.

102 Fundamentals of Management (3)

Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking. **Second Session:** MTWThF 1:10-2:30 pm.

105 Personnel Management (3)

The labor force and labor markets. Industrial personnel and manpower programs, organizations and policy in personnel activities. **First Session:** MTWThF 6-7:20 pm.

118 Introduction to Data Processing (3)

Basic principles and methods of data processing. Introduction to fundamentals, potentials, and problems of automatic data processing as a tool of management. **First Session:** MTWThF 4:10-5:30 pm.

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. **Second Session:** MTWThF 4:10-5:30 pm.

141 Basic Marketing Management (3)

Introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2. **First Session:** MTWThF 6-7:20 pm.

161 Commercial Law: Contracts, Sales, Agency, and Bailments (3)

Second Session: MTWThF 6-7:20 pm.

191 Business Reports and Analyses (3)

Sources of management information, array and analysis of data, interpretation and presentation of findings. **First Session:** MTWThF 11:10 am-12:30 pm.

208A Personnel Management and Industrial Relations (3)

For students in the Air Force Advanced Management Program only. Survey of personnel management practices and procedures, including labor-management relations. **July 29 to September 6:** as arranged.

209 Seminar: Personnel Management (3)

Discussion of industrial personnel and manpower management, and research in advanced problems. **Second Session:** MWF 6:10-8 pm.

231 Corporate Financial Problems (3)

Financial practice in promotion, consolidation, and mergers; capital structure adjustments; and reorganization. **Second Session:** MWF 4:10-6 pm.

232 Seminar: Business Finance (3)

Research in advanced financial problems. **Second Session:** MWF 6:10-8 pm.

241 Advanced Marketing Management (3)

Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Tools useful in decision making. Case analysis. **First Session:** MWF 8:10-10 pm.

298 Readings in Business (3)

(Formerly *Business Administration 273*)

Supervised readings in selected fields within business administration. Admission by permission of instructor. May be repeated once for credit. **First Session:** MWF 6:10-8 pm.

299 Thesis Seminar (3)

Examination of thesis standards, research philosophy, and methodology. **First Session:** MWF 8:10-10 pm.

300 Thesis Research (3)

Second Session: as arranged.

Business and Public Administration

Administered by the Department of Business Administration, H.R. Page,
Chairman

***201 Advanced Administrative Management (3)**

Advanced course in administration emphasizing principles and practices common to administrative units of all kinds. **First Session:** Section A—MWF 8:10-10 pm. **Second Session:** Section B—MWF 4:10-6 pm.

203 Mathematics for Management (3)

Mathematical concepts employed in the solution of management problems. Applications of analytical geometry, functions, elements of calculus, and linear algebra to optimization problems. **First Session:** MWF 4:10-6 pm.

204 Quantitative Factors in Administration (3)

Survey of quantitative techniques used in the solution of management problems. Potentials and limitations of mathematical models and proper areas for their application. Topics include probability; statistical decision theory; linear programming; waiting line, inventory replacement models. Prerequisite: Business and Public Administration 203 or equivalent. **Second Session:** MWF 4:10-6 pm.

* A special section of this course, Business and Public Administration 201C, for students in the Air Force Advanced Management Program, will be offered July 29 to September 6; hours to be arranged. A second special section, Business and Public Administration 201D, for students in the Navy Graduate Financial Management Program, will be offered July 29 to September 6; hours to be arranged.

207 Human Behavior in Organizations (3)

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications emphasized. **First Session:** MWF 8:10-10 pm.

211 Leadership and Executive Performance (3)

Theories of managerial leadership; issues and problems associated with leadership in large organizations and at higher management levels; executive selection and development. Not open for credit to students who have taken former Business Administration 288. **First Session:** MWF 6:10-8 pm.

218 Survey of Data Processing (3)

Fundamentals of automatic data processing; manual, punch card, and electronic data processing principles and procedures; basic machine language and advanced language programming techniques; phases of data systems development; the role of the manager in management information systems. Emphasis on proper use of data processing as another tool of management. **Second Session:** MWF 6:10-8 pm.

221 Management Information Systems Development and Application (3)

Development of management information systems, integration of data processing in operations of government or business, impact on management organization and decision making. Case studies. Prerequisite: Business and Public Administration 218 or 219, or permission of instructor. **First Session:** MWF 6:10-8 pm.

263 Organization and Management (3)

Contemporary management theory, emphasizing the application of management concepts in organizational practice. Comparative studies of current organizational designs and management processes. Prerequisite: Business and Public Administration 201, 204, 207. **Second Session:** MWF 6:10-8 pm.

287 Relations of Government to Business (3)

Activities of government in relation to business management in areas of labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy. **First Session:** MWF 6:10-8 pm.

For information concerning the Institute on Government and Business Relations, see pages 35-36.

Chemistry

C.R. Naeser, *Chairman*

11-12 General Chemistry (4-4)

A year course: credit given on completion of Chemistry 12. Elementary course in general chemistry including qualitative analysis. **Prerequisite:**

one year of high school algebra. Laboratory fee, \$18 each session.

First Session: Chemistry 11; **Second Session:** Chemistry 12. MWF 8:10 am–1 pm; TTh 8:10–11:10 am.

22 Elementary Quantitative Analysis (4)

Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 12. Laboratory fee, \$18. **First Session:** MTWThF 8:10 am–12:30 pm.

51–52 Organic Chemistry (4–5)

A year course: credit given on completion of Chemistry 52. Chemistry of the compounds of carbon. Prerequisite: Chemistry 12 or 16. Laboratory fee: Chemistry 51, \$12; Chemistry 52, \$20. **First Session:** Chemistry 51—MTWThF 8:10 am–12:30 pm. **Second Session:** Chemistry 52—MTWThF 8:10 am–1:30 pm.

111 Physical Chemistry (3)

Gas Laws, chemical thermodynamics, solution chemistry, chemical equilibria, and other topics. Prerequisite: Chemistry 22; Mathematics 22; Physics 1, 2 or 30. **First Session:** MTWThF 6–7:20 pm.

112 Physical Chemistry (3)

Chemical kinetics, chemical statistics, electrochemistry, and other topics. Prerequisite: Chemistry 111. **Second Session:** MTWThF 6–7:20 pm.

295 Research (arr.)

Research on problems approved by the staff. Open to qualified students with advanced training. May be repeated once for credit. Laboratory fee, \$7.50 a semester hour. **Both sessions:** Hours and credits as arranged.

299–300 Thesis Research (3–3)

Laboratory fee, \$18 each session. **First Session:** Chemistry 299; **Second Session:** Chemistry 300. As arranged.

Chinese (Mandarin)

Administered by the Department of Slavic and Oriental Languages and Literatures, Helen Yakobson, *Chairman*

1–2 First-year Chinese (3–3)

A year course: credit given on completion of Chinese 2. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 each session. **First Session:** Chinese 1; **Second Session:** Chinese 2. Lecture MTWThF 6–7:20 pm; laboratory.*

* For laboratory sections, see the Hourly Schedule, pages 88–94. All First Session language laboratories begin June 20.

Classical Languages and Literatures

J.F. Latimer, *Chairman*

1-2 First-year Latin (3-3)

A year course: credit given on completion of Latin 2. Functional presentation of the essentials of the language, appropriate reading selections, development of English derivatives, introduction to Roman life and literature. **First Session:** Latin 1; **Second Session:** Latin 2. MTWThF 9:40-11 am.

113 Greek and Roman Drama (3)

Selected masterpieces of Greek and Roman tragedy and comedy. In English translation. **First Session:** Section A; **Second Session:** Section B. MTWThF 11:10 am-12:30 pm.

Economics*

C.E. Galbreath, *Chairman*

*1-2 Principles of Economics (3-3)

Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. **First Session:** Economics 1 Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm. **Second Session:** Economics 1 Section C—MTWThF 1:10-2:30 pm; Economics 2 Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm.

101 Intermediate Microeconomic Theory (3)

Analysis of supply, demand, and pricing. **Second Session:** MTWThF 8:10-9:30 am.

102 Intermediate Macroeconomic Theory (3)

Theories of national income determination and growth. **First Session:** MTWThF 11:10 am-12:30 pm.

121 Money and Banking (3)

Nature of money, credit, commercial banking, and the other financial institutions in the U.S. monetary system. **Second Session:** MTWThF 6-7:20 pm.

†147 Economic History of Europe (3)

European economic development since the Middle Ages; emphasis on the period following the Industrial Revolution. Evolution of capitalism and its impact upon the societies of Europe. **Second Session:** MTWThF 11:10 am-12:30 pm.

* Economics 1-2 is prerequisite to all other courses in Economics.

† Interdepartmental course offered by departments of Economics and History. Students register in either department.

181-82 International Economics (3-3)

Economics 181: fundamentals of the monetary theory and price theory of international trade. *Economics 182:* analysis of major contemporary problems including balance of payments, international liquidity, and economic development. **First Session:** Economics 181—MTWThF 11:10 am-12:30 pm. **Second Session:** Economics 182—MTWThF 6-7:20 pm.

195 Governmental and Industrial Economics (3)

For students in the Navy Graduate Financial Management Program.
June 3 to July 26: as arranged.

217 Survey of Economics (3)

For graduate students in fields other than economics. Not open to graduate students in economics. Price theory. **First Session:** MWTh 6:10-8 pm.

299-300 Thesis Research (3-3)

First Session: Economics 299 and 300A. **Second Session:** Economics 300B. As arranged.

Education*

B.S. Root, *Chairman*

See also courses in Physical Education and Recreation, pages 69-72, and in Special Education, pages 82-84.

FIRST 3-WEEK WORKSHOP SESSION—JUNE 18 TO JULY 5

Classes meet Monday through Friday. Each workshop course requires the full day; concurrent registration for another daytime course is not permitted. June 18 to 21—small group discussions, evening; June 24 to July 5—small group discussion and field work, afternoon.

108 Human Development, Learning, and Teaching (3)

Principles of effective teaching based on an understanding of human development and the nature of learning. **Prerequisites:** Psychology 22. A 6-week course, June 18 to July 26: lecture MW 6:40-9 pm; conference 6-6:40 pm.

112A Educational Measurement (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. **Prerequisite:** Education 108 and 123. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 10:10-12 am; conference 9:10-10 am.

* A degree from an accredited institution is prerequisite to all courses numbered from 201 to 400.

***116 Elementary School Social Studies (3)**

Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 8:10-10 am; conference 10:10-11 am.

***120 Elementary School Mathematics (3)**

Content, methods, materials, concepts of "new mathematics," and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 8:10-10 am; conference 10:10-11 am.

214 History of Education (3)

Evolution of the American school system. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 10:10-12 am; conference 9:10-10 am.

†219 Elementary School Classroom Procedures (3)

Current classroom practices; emphasis on planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 8:10-10 am; conference 10:10-11 am.

245 School and Community (3)

The school as an important member of a team of social agencies that builds the community. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 10:10-12 am; conference 9:10-10 am.

†251 Foundations of Guidance and Personnel Services (3)

Introductory survey: definitions, scope, principles, historical background, organization, services, emerging trends, and issues. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 8:10-10 am; conference 10:10-11 am.

†255 Secondary Education (3)

Current proposals for improvement of secondary education. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 8:10-10 am; conference 10:10-11 am.

257 Educational and Occupational Development (3)

Theories of career development; structure of education, training, and work in the United States; sources, forms, collection, evaluation, and dissemination of educational-occupational information. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 10:10-12 am; conference 9:10-10 am.

380 Sensitivity Training: Laboratory Method (3)

A sensitivity learning experience in human relations using unstructured group experience, individual feedback, experimentation, and practice. **June 18 to 28:** lecture and laboratory 9:10-12 am and 1:10-5 pm. **July 1 to 5:** individual projects as assigned and conference.

* This course may not be taken by students who have completed or plan to enroll in Education 111.
† Prerequisite: adequate professional preparation.

Psyc 22A Introduction to Educational Psychology (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. **June 18 to 21:** lecture 3:45-5:45 pm. **June 24 to July 5:** lecture 10:10-12 am; conference 9:10-10 am

SECOND 3-WEEK WORKSHOP SESSION—JULY 8 TO JULY 26

Classes meet Monday through Friday. Concurrent registration for another day-time course is not permitted, because each workshop course requires the full day—lecture and conference in the morning; small group discussion and field work in the afternoon.

113 Elementary School Art (3)

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Material fee, \$5. Lecture 10:10-12 am; conference 9:10-10 am.

***115 Elementary School Teaching of Reading (3)**

Introduction to methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123, or teaching experience. Lecture 10:10-12 am; conference 9:10-10 am.

†207 Curriculum Materials (3)

For experienced teachers. Construction of courses of study and classroom teaching aids, with direct application to students' own situations. Lecture 8:10-10 am; conference 10:10-11 am.

†223 Reading Problems (3)

Elementary and secondary school reading difficulties; classroom and clinical techniques in solving reading problems. Prerequisite: one or more years of recent teaching experience. Lecture 10:10-12 am; conference 9:10-10 am.

†243 Human Relations in the Classroom (3)

Principles and practices involved in interpersonal relationships between learner and teacher and among learners. Lecture 10:10-12 am; conference 9:10-10 am.

253 Analysis of the Individual for Purposes of Counseling (3)

Detailed study of individual analysis and appraisal techniques. Development of systematic case study. Prerequisite: Education 112 or equivalent. Lecture 8:10-10 am; conference 10:10-11 am.

†256 Secondary Education (3)

Current problems in each subject-matter field. Lecture 8:10-10 am; conference 10:10-11 am.

†285 Student Activities (3)

Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular at-

* This course may not be taken by students who have completed or plan to enroll in Education 111.
† Prerequisite: adequate professional preparation.

tention to sponsorship, participation, finance, and evaluation. Lecture 10:10-12 am; conference 9:10-10 am.

352 Advanced Career Development (3)

Advanced workshop for experienced counselors; theory and uses of new educational media in guidance; field study of job opportunities in area business, industry, and government agencies. Admission by permission of instructor. Lecture 1:10-3 pm; field work 9:10-12 am.

357 Mental Hygiene (3)

Mental health problems; emphasis on needs of counselors, teachers, and others working with children and adolescents. Lecture 8:10-10 am; conference 10:10-11 am.

THIRD 3-WEEK WORKSHOP SESSION—JULY 29 TO AUGUST 16

Classes meet Monday through Friday. Concurrent registration for another day-time course is not permitted, because each workshop course requires the full day—lecture and conference in the morning; small group discussion and field work or laboratory in the afternoon.

114 Elementary School Music (3)

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Lecture 10:10-12 am; conference 9:10-10 am.

*117 Elementary School Science (3)

Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. Lecture 8:10-10 am; conference 10:10-11 am.

*128 Children's Literature (3)

Newer books for children and the children's classics, contribution of literature to child development, children's original expressions. Lecture 8:10-10 am; conference 10:10-11 am.

†208 Human Development (3)

Contribution of various disciplines to an understanding of human development throughout the life span; emphasis on practical implications of relevant research. Lecture 8:10-10 am; conference 10:10-11 am.

†216 Education of Slow-learning Children (3)

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. Lecture 8:10-10 am; conference 10:10-11 am.

†231 Secondary School Classroom Procedures (3)

Current classroom practices: teacher-pupil planning, group procedures, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. Lecture 8:10-10 am; conference 10:10-11 am.

* This course may not be taken by students who have completed or plan to enroll in Education 111.
† Prerequisite: adequate professional preparation.

***241 Education of the Gifted (3)**

For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects. Lecture 10:10-12 am; conference 9:10-10 am.

258 Techniques of Counseling (3)

Intensive study of educational and psychological processes involved in counseling interviews. Vocational, educational, and personal counseling problems. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. Lecture 10:10-12 am; conference 9:10-10 am.

***272 The Teacher and School Supervision (3)**

Nature, organization, human relationships, and techniques. Lecture 10:10-12 am; conference 9:10-10 am.

286 Introduction to Student Personnel Work (3)

Student personnel services in American higher education. Personnel work as an integral part of the college program; introduction to the literature of the field. Lecture 10:10-12 am; conference 9:10-10 am.

SIX-WEEK SESSION—JULY 8 TO AUGUST 16***123 Society and the School (3)**

Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel. TTh 6:40-9 pm; conference 6-6:40 pm.

141 Teaching Latin (3)

Objectives; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. For junior and senior high school teachers. A 5-week course, July 26 to August 30: MTWThF 8:10-9:30 am.

***218 Philosophy of Education (3)**

Social foundations of education—forces that shape policies and offerings of the school. MTWThF 11-12 am; two conference hours as arranged.

***229 Administration of Elementary Education (3)**

For experienced teachers and administrators. Achieving instructional objectives, organizing and servicing teaching activities, coordinating school and community life. TTh 1-3:20 pm; conference MWF 1-2 pm.

***233 Audio-visual Education (3)**

Selection, evaluation, and use of audio-visual materials; administrative problems in care, operation, maintenance, and use of such materials and equipment. Material fee, \$7. MW 6:40-9 pm; two conference hours as arranged.

***259 Secondary School Administration (3)**

For experienced teachers and administrators with two years of secondary school teaching. Survey of administration including practices of the modern high school. MW 6:40-9 pm; two conference hours as arranged.

* Prerequisite: adequate professional preparation.

* Enrollees fully employed may not register for another course.

***261 Practicum in Guidance (3)**

Supervised practical instruction. Prerequisite: graduate work in counseling. Admission by permission of the Department Chairman. MTW ThF 1-2 pm; two conference hours as arranged.

***†271 The Teacher and School Administration (3)**

Role of federal, state, and local administrative units; school finance; legal controls; school plant; public support; improving teaching conditions. TTh 4:10-6 pm; two conference hours as arranged.

***†280 Adult Education (3)**

The adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. TTh 6:40-9 pm; two conference hours as arranged.

293-94 Research (3-3)

Individual research under guidance of a staff member. Program and conferences arranged with an instructor. As arranged.

***295 Research Methods and Procedures (3)**

Required of all candidates for graduate degrees in education. To be taken early in the graduate program. Prerequisite: elementary course in statistics. Section A: TTh 1:10-3:30 pm; two conference hours as arranged. Section B: MW 6:40-9 pm; two conference hours as arranged.

296 Seminar: Educational Research (3)

Analysis of scientific approaches to problems in education and evaluation of the application of research techniques. Required of all candidates for the Ed.D. degree and open to candidates for other advanced degrees. Prerequisite: Education 295 or equivalent. MW 4:10-6 pm; two conference hours as arranged.

***†298 Seminar: Personnel Administration (3)**

Research: policies, rules and regulations, staff organizations, negotiations. TTh 6:40-9 pm; two conference hours as arranged.

299-300 Thesis (3-3)

Required of Master of Arts in Education candidates writing Master's theses. As arranged.

***†301 Data Processing in Education (3)**

Machine accounting and computer technology for counselors, teachers, and administrators. MW 6:40-9 pm; two conference hours as arranged.

332 Curriculum for Early Childhood (4)

Lecture and field. Language arts, science, mathematics, social studies, and the creative arts, emphasizing adaptation to skills and needs of the young child; review of new programs. TTh 6:40-9 pm; conference 6-6:40 pm.

* Prerequisite: adequate professional preparation

† Enrollees fully employed may not register for another course.

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

107 Elementary School Teaching Foundations (9)

A block course, dealing with the content of traditional courses in educational psychology; history of education; human development, learning, and teaching; society and the school; introduction to elementary education. 135 class hours, supplemented by field experience. MTWThF 9-12 am; field work—afternoon.

*112B Educational Measurement (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123. MW 1-3 pm.

Engineering

H.E. Smith, *Acting Dean*

198 Engineering Research (3)

Applied research and experimentation projects, as arranged. Prerequisite: junior or senior status. An 8-week course, June 18 to August 9: as arranged.

298 Research (arr.)

An 8-week course, June 18 to August 9: hours and credit as arranged.

299-300 Thesis Research (3-3)

An 8-week course, June 18 to August 9: as arranged.

Engineering Administration

H.E. Smith, *Chairman*

269 Operations Research I (3)

Basic concepts and techniques of operations research as applied to problems in industrial, governmental, and military decision making. History and orientation of operations research; concept of quantitative decision making; decisions under certainty, risk and uncertainty; utility; allocation models. Game theory; queuing theory; inventory, sequencing, and replacement models; Monte Carlo, simulation, and gaming. Prerequisite: Applied Science 115 or equivalent. An 8-week course, June 18 to August 9: MW 4:10-6:40 pm.

298 Research (3)

Basic or applied research in engineering administration. An 8-week course, June 18 to August 9: as arranged.

* This special section of Education 112 is for students in the Special Program in Elementary Teacher Education.

English

J.P. Reesing, Jr., *Chairman*

ENGLISH COMPOSITION*

A English for Foreign Students (3)

Reading and writing to assist the foreign student in overcoming deficiencies in the use of English. Special attention to spelling, syntax, grammar, idiom, and vocabulary. **First Session:** MTWThF 6-7:20 pm.

B English for Foreign Students (3)

For second-semester foreign students not ready for English 1. Writing of expository paragraphs and themes; outlining; reading for comprehension, vocabulary, and style. **First Session:** MTWThF 7:30-8:50 pm.

1 English Composition (3)

Analysis and practice of expository techniques with emphasis on unity, development, and organization; library research procedure. **First Session:** MTWThF 11:10 am-12:30 pm.

2 English Composition (3)

For second-semester freshmen not following the Columbian College sequence. Readings and practice in expository and argumentative techniques; research practice. Credit is not given to students with credit for English 40 or former 4. Prerequisite: English 1 or 1x. **Second Session:** MTWThF 9:40-11 am.

40 English Composition (3)

(Formerly English 4)

Second half of the 6-hour English Composition course required of Columbian College students. Critical analysis and practice in expository and argumentative techniques; research practice. Credit not given to students with credit for English 2. Prerequisite: English 1 or 1x and both semesters of one of the introductory literature courses. **Second Session:** MTWThF 11:10 am-12:30 pm.

ENGLISH LITERATURE†

†51-52 Introduction to English Literature (3-3)

Historical survey. Prerequisite: English 1 or 1x. **First Session:** English 51; **Second Session:** English 52. MTWThF 9:40-11 am.

* Students whose College Board English Composition Achievement Test scores suggest inadequate preparation may be assigned to English 1x or may be tested in vocabulary, spelling, grammar, standard usage, and writing skill, before placement in either English 1x or 1. Students whose scores indicate marked superiority will be allowed to waive the English 1 requirement.

† All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Italian, Slavic, or Spanish) will follow the sequence of English 1 or 1x, both semesters of one of the introductory literature courses, and English 40.

English 1 or 1x is prerequisite to all other courses in English. English 2 is the second half of the six-hour composition requirement of students not required to follow the Columbian College of Arts and Sciences sequence.

† English 51-52, 71-72, or 91-92; Classical Languages 71-72; French 51-52; German 51-52; Italian 51-52; Slavic 91-92 or 93-94, or Spanish 51-52 is prerequisite to all second-group courses except English 125.

135-36 Shakespeare (3-3)

First Session: English 135; **Second Session:** English 136. MTWThF 4:10-5:30 pm.

142 English Literature, 1740-1780 (3)

Poetry and prose of the Neoclassic period. **First Session:** MTWThF 11:10 am-12:30 pm.

162 Victorian Literature, 1859-1900 (3)

Poetry and prose. **Second Session:** MTWThF 11:10 am-12:30 pm.

222 Studies in Chaucer (3)

First Session: MWTh 6:10-8 pm.

AMERICAN LITERATURE*

***71-72 Introduction to American Literature (3-3)**

Historical survey: English 71, from the beginnings to the Civil War; English 72, from the Civil War to the present. Prerequisite: English 1 or 1x. **First Session:** English 71; **Second Session:** English 72. MTWThF 6-7:20 pm.

170 The American Short Story (3)

Historical development of the short story in America. **Second Session:** MTWThF 1:10-2:30 pm.

174 Major American Poets (3)

Advanced critical study of significant writers and movements of the 20th century. **First Session:** MTWThF 4:10-5:30 pm.

175-76 American Drama (3-3)

Historical and critical study of significant plays and forms. *English 175:* from beginnings to 1930. *English 176:* since 1930. **First Session:** English 175; **Second Session:** English 176. MTWThF 11:10 am-12:30 pm.

278 Seminar: American Fiction (3)

Second Session: MWTh 6:10-8 pm.

For information concerning the American Studies program, see page 33.

* English 51-52, 71-72, or 91-92; Classical Languages 71-72; French 51-52; German 51-52; Italian 51-52; Slavic 91-92 or 93-94, or Spanish 51-52 is prerequisite to all second group courses except English 171-72.

French*

Administered by the Department of Romance Languages and Literatures.
J.A. Frey, *Chairman*

1-2 First-year French (3-3)

A year course: credit given on completion of French 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. **First Session:** French 1; **Second Session:** French 2. **MTWThF 8:10-9:30 am; laboratory†.**

†3-4 Second-year French (3-3)

A year course: credit given on completion of French 4. Conversation, grammar, composition, reading of modern French prose, introduction to French civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. **Prerequisite:** French 1-2, 2x, or two years of high school French. **First Session:** French 3; **Second Session:** French 4. **Section A—MTWThF 9:40-11 am; Section B—MTWThF 6-7:20 pm; laboratory†.**

9-10 French Conversation and Composition (3-3)

Prerequisite: French 4 or equivalent and permission of instructor.
First Session: French 9; **Second Session:** French 10. **MTWThF 9:40-11 am.**

49 French for Graduate Students (0)

For graduate students preparing for reading examinations. No academic credit. Tuition fee, \$180. **First Session:** MTWThF 6-7:20 pm.

†51 Survey of French Literature and Civilization (3)

Social, artistic, and cultural background of French literature. Lectures, readings, recitations, and informal discussions. **First Session:** MTWThF 1:10-2:30 pm.

109 Advanced French Conversation and Composition (3)

Prerequisite: French 10 or equivalent and permission of instructor.
First Session: MTWThF 1:10-2:30 pm.

130 Contemporary French Literature (3)

The Novel. **First Session:** MTWThF 1:10-2:30 pm.

201 Grammar, Composition, and Stylistics (3)

For secondary teachers of the French language and graduate students preparing to teach in secondary schools. **First Session:** MTWThF 4:10-5:30 pm.

256 19th Century French Literature (3)

Symbolism. **First Session:** MTWThF 9:40-11 am.

* A standardized placement examination given before registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course, with credit assigned on the usual basis.

† For laboratory sections, see Hourly Schedule, pages 88-94. All First Session laboratories begin June 20.

‡ French 3-4 or 6 is required, and French 51-52 is recommended, as prerequisite to all second-group courses.

Geography and Regional Science

P.J. Mika, *Chairman*

51 Introduction to Geography (3)

Interrelated processes affecting the character of landforms, hydrography, soils, vegetation, and climate; relevance of their world patterns to man.

First Session: MTWThF 1:10-2:30 pm.

52 World Regions (3)

Survey of major countries, synthesis and analysis of major world regions.

Second Session: MTWThF 9:40-11 am.

151 United States and Canada (3)

First Session: MTWThF 9:40-11 am.

***165 Asia (3)**

Second Session: MTWThF 11:10 am-12:30 pm.

189-90 Readings in Geography (arr.)

Both sessions: hours and credit as arranged.

210 Seminar: Applied Economic Geography (3)

Problems in analyzing area and site development potential; evaluating alternative locational possibilities for manufacturing, commercial, and service facilities. **First Session:** MWTh 6:10-8 pm.

295 Research (arr.)

May be repeated once for credit. **Both sessions:** hours and credit as arranged.

299-300 Thesis Research (3-3)

Both sessions: as arranged.

Geology

Geza Teleki, *Chairman*

1-2 Introductory Geology (3-3)

Survey covering the principles of geology. Laboratory fee, \$10 each session.

First Session: Geology 1; **Second Session:** Geology 2. MTWThF 9:40 am-1 pm.

103 Development of Scientific Thought (3)

Second Session: MTWTh 1:10-2:50 pm.

295 Research (2)

Research on problems approved by the Staff. Open to qualified students with advanced training. May be repeated for credit. **Both sessions:** as arranged.

* A regional survey course providing an introduction to more detailed study of geographic regions. Characteristics, interrelationships, and area distributions of natural and cultural phenomena are considered. Prerequisite: Geography 51 or equivalent. Strongly recommended for students interested in the study of specific areas are the regional courses in the departments of Economics, History, and Political Science.

299-300 Thesis Research (3-3)

First Session: Geology 299; Second Session: Geology 300.

Germanic Languages and Literatures*

J.C. King, *Chairman*

1-2 First-year German (3-3)

A year course: credit given on completion of German 2. Essentials of German grammar; translation of easy prose. Aural-oral practice in language laboratory. Laboratory fee, \$17.50 each session. First Session: German 1; Second Session: German 2. Lecture: MTWThF 6-7:20 pm; laboratory†.

3-4 Second-year German (3-3)

A year course: credit given on completion of German 4. Selections from modern German prose; continuation and review of grammar. Aural-oral practice in language laboratory. Laboratory fee, \$17.50 each session. First Session: German 1-2 or two years of high school German. First Session: German 3; Second Session: German 4. Lecture: MTWThF 7:30-8:50 pm; laboratory†.

47 Beginning German for Reading Examination Candidates (0)

Specifically for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, \$180. First Session: MTWThF 6-7:20 pm.

49 German Readings for Nonmajor Students (3)

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of instructor. No academic credit for graduate students. Prerequisite: German 4 or German 47, or equivalent. Second Session: Section A—MTWThF 6-7:20 pm; Section B—MTWThF 7:30-8:50 pm.

Health Care Administration

Leon Gintzig, *Chairman*

203 Organization and Management (3)

History and current character of institutional health care. Organizational functions and structure of various kinds of facilities related to health care administration. Prerequisite or concurrent registration: Business and Public Administration 201. An 8-week course, June 18 to August 9: TTh 8-10 am; laboratory as arranged.

* A standardized placement examination given before registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course, with credit assigned on the usual basis.
† For laboratory sections, see the Hourly Schedule, pages 88-94. All First Session language laboratories begin June 20.

270 Research in Health Care Administration (3)

Field research. Primarily for doctoral candidates; open to graduate students with consent of instructor. **Both sessions:** as arranged.

293 Hospital Residency I (3)

First third of the twelve-month residency, beginning June 1 or July 1 of each year, has four major objectives: work experience under a qualified preceptor; periodic seminars with University staff; periodic written progress reports of work accomplished; and a final written report of a major investigation. Sections A, B, C, and D.

296 Hospital Residency II (3)

First third of the twelve-month residency, beginning June 1 or July 1 of each year. For selected students who take a second year of residency.

History*

R.P. Sharkey, *Chairman*

39-40 European Civilization in Its World Context (3-3)

Primarily for freshmen. *History 39:* political, social, economic, and cultural history from ancient times to the early modern era. *History 40:* 1600 to present. Students cannot receive credit for both History 39-40 and 91-92. **First Session:** History 39—MTWThF 8:10-9:30 am; History 40A—MTWThF 11:10 am-12:30 pm. **Second Session:** History 40B—MTWThF 9:40-11 am.

71-72 Civilization of the United States (3-3)

Primarily for sophomores. *History 71:* political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *History 72:* 1865 to present. **First Session:** History 71A—MTWThF 9:40-11 am; History 72A—MTWThF 6-7:20 pm. **Second Session:** History 71B—MTWThF 8:10-9:30 am; History 72B—MTWThF 9:40-11 am.

138 History of the Comintern (3)

First Session: MTWThF 4:10-5:30 pm. (See Communist Affairs program, pages 34-35.)

†147 Economic History of Europe (3)

Economic development since the Middle Ages; emphasis on the period following the Industrial Revolution. Evolution of capitalism and its impact upon the societies of Europe. **Second Session:** MTWThF 11:10 am-12:30 pm.

* History 39-40 is prerequisite to courses 109 through 154 and 187 through 196; History 71-72, to courses 170 through 184, either 39-40 or 71-72, to courses 162 through 166. Prerequisite to History 105-6 is either History 39-40 or a background in a science.

† Prerequisite to all third- and fourth-group courses: the appropriate second-group preparation and consent of the instructor.

Fourth-group courses are limited to graduate students; but they are primarily for doctoral candidates.

‡ Interdepartmental course offered by departments of History and Economics. Students register in either department.

150 European Diplomatic History since 1890 (3)

The European state system; diplomatic practices and relations since the Congress of Vienna; emphasis on policies and actions of the great powers and their statesmen. Students cannot receive credit for both History 150 and 153. **First Session:** MTWThF 11:10 am–12:30 pm.

164 History of Latin America (3)

Political, social, and cultural development. The national period. **First Session:** MTWThF 4:10–5:30 pm.

173 Representative Americans (3)

Significant and pivotal personalities in government, business, science, religion, journalism, the arts, and social reform. **Second Session:** MTWThF 8:10–9:30 am.

175 U.S. Political History (3)

To the Civil War. **First Session:** MTWThF 9:40–11 am.

182 U.S. Diplomatic History since 1898 (3)

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; activities of American secretaries of state and diplomatic agents. **First Session:** MTWThF 1:10–2:30 pm.

187 History of Modern China (3)

Second Session: MTWThF 9:40–11 am. (See Communist Affairs program, pages 34–35.)

193 History of the Near East (3)

Byzantine, Arab, Persian, and Islamic backgrounds; rise and decline of the Ottoman Empire; action of European powers in the area; Ottoman breakup into the Turkish Republic and other successor states. **First Session:** MTWThF 4:10–5:30 pm.

208 Seminar: History of the Comintern (3)

First Session: MWF 6:10–8 pm. (See Communist Affairs program, pages 34–35.)

262 Research Seminar: Latin American History (3)

Prerequisite: 6 semester hours selected from History 162, 163–64, 165, 166. **First Session:** MWF 5:30–7:20 pm.

276 Research Seminar: U.S. Political History (3)

Prerequisite: History 175–76 or equivalent. **First Session:** MWF 11:10 am–1 pm.

291 Research Seminar: 20th Century Problems—Era of World War I

First Session: TTh 1:10–4 pm.

299–300 Thesis Research (3–3)

Both sessions: as arranged.

341 Readings in Modern European History (3)

First Session: MWTh 1:10–3 pm.

371 Readings in American Social History (3)

Second Session: TTh 2:10-5 pm.

396 Readings in Modern Far Eastern History (3)

Second Session: MWF 6:10-8 pm. (See Communist Affairs program, pages 34-35.)

Institute for Sino-Soviet Studies

For information concerning the Communist Affairs program, see pages 34-35.

Italian*Administered by the Department of Romance Languages and Literatures,
J.A. Frey, *Chairman***1-2 First-year Italian (3-3)**A year course: credit given on completion of Italian 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. **First Session:** Italian 1; **Second Session:** Italian 2. MTWThF 9:40-11 am; laboratory.**3-4 Second-year Italian (3-3)**A year course: credit given on completion of Italian 4. Conversation, grammar, composition, reading in modern Italian prose, introduction to Italian civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. Prerequisite: Italian 1-2 or two years of high school Italian. **First Session:** Italian 3; **Second Session:** Italian 4. MTWThF 11:10 am-12:30 pm; laboratory.**Latin**

See "Classical Languages and Literatures."

Law

A list of courses to be offered during the summer of 1968 at the National Law Center will be available in a Law Center announcement scheduled to be issued during January, 1968. Copies of this announcement may be obtained from the National Law Center.

* A standardized placement examination administered at registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course with credit assigned on the usual basis.

† For laboratory sections, see the Hourly Schedule, pages 88-94. All First Session language laboratories begin June 20.

Mathematics

Hewitt Kenyon, *Chairman*

3 College Algebra (3)

Equivalent to second-year high school algebra. Prerequisite: one year each of high school algebra and high school geometry. First Session: MTWThF 6-7:20 pm.

6 Plane Trigonometry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor). Second Session: MTWThF 6-7:20 pm.

9 General Mathematics I (3)

For students electing Mathematics 9 and 10 as a terminal sequence. Numerals and numbers, number bases, mathematical systems, sets, propositional logic and truth values. Prerequisite: two years of high school mathematics. First Session: Section A—MTWThF 8:10-9:30 am. Second Session: Section B—MTWThF 4:10-5:30 pm.

10 General Mathematics II (3)

Number systems, Euclidean and non-Euclidean geometry, graphs, functions, introduction to analytic geometry. Prerequisite: Mathematics 9. Second Session: MTWThF 9:40-11 am.

15 Finite Mathematics I (3)

Introduction to logic, sets, and probability. Prerequisite: two years of high school mathematics. First Session: MTWThF 9:40-11 am.

16 Finite Mathematics II (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. Second Session: MTWThF 9:40-11 am.

*21 Calculus I (3)

Elementary concepts of analytic geometry. Differentiation of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or equivalent. First Session: Section A—MTWThF 11:10 am-12:30 pm. Second Session: Section B—MTWThF 6-7:20 pm.

22 Calculus II (3)

Differentiation and integration of transcendental functions and applications, topics in analytic geometry. Prerequisite: Mathematics 21. First Session: Section A—MTWThF 6-7:20 pm. Second Session: Section B—MTWThF 11:10 am-12:30 pm.

23 Calculus III (3)

Techniques of integration, vector concepts, improper integrals, polar coordinates, infinite series. Prerequisite: Mathematics 22. First Session: MTWThF 1:10-2:30 pm.

* New students registering for Mathematics 21 are required to take a placement examination

***24 Calculus IV (3)**

Solid geometry, multiple integration and partial differentiation with applications, line and surface integrals, differential equations. Prerequisite: Mathematics 23, or concurrent registration in Mathematics 23 and permission of Department. Second Session: MTWThF 1:10-2:30 pm.

111 Mathematics for Engineers and Physicists I (3)

Differential equations, linear algebra. First Session: MTWThF 7:30-8:50 pm.

112 Mathematics for Engineers and Physicists II (3)

Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111. Second Session: MTWThF 7:30-8:50 pm.

113 Graph Theory (3)

Directed and undirected graphs; unicursal graphs; shortest paths; Hamilton circuits; incidence, circuit and cut-set matrix relations; coloring problems; network flow. First Session: MTWTh 6-7:40 pm.

122 Introduction to Abstract Algebra (3)

First Session: MTWThF 7:30-8:50 pm.

124 Introduction to Matrix Theory (3)

Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices. Second Session: MTWThF 7:30-8:50 pm.

139 Advanced Calculus I (3)

Review and extension of elementary one-variable calculus, emphasis on the theoretical foundations. Prerequisite: Mathematics 24 or 28, or equivalent. First Session: MTWThF 9:40-11 am.

140 Advanced Calculus II (3)

Calculus of several variables. Prerequisite: Mathematics 139 or equivalent. Second Session: MTWThF 9:40-11 am.

157 Introduction to Complex Variable Theory (3)

Second Session: MTWThF 6-7:20 pm.

268 Calculus of Variations (3)

A modern treatment of the basic concepts of the calculus of variations, necessary conditions for solutions to variational problems with fixed or variable boundaries, sufficient conditions for strong and weak extrema. Prerequisite: Mathematics 140 or equivalent. First Session: MTWThF 6-7:20 pm.

269 Integral Equations (3)

Equations of Fredholm type, Hilbert-Schmidt theory, singular integral equations, applications to problems of mathematical physics. Prerequisite: Mathematics 140 and 157, or equivalent. Second Session: MTWThF 6-7:20 pm.

*Mathematics 24 is prerequisite to all second-group courses. Exception to this regulation may be made for Mathematics 101, 122, and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

299-300 Thesis Research (3-3)

Both sessions: as arranged.

Music

George Steiner, *Chairman*

MUSIC HISTORY AND LITERATURE

3 Introduction to Music (3)

(Formerly Music Appreciation I)

Introductory history of musical styles, related to listening; elements and materials of music. First Session: Section A—MTWThF 6-7:20 pm
Second Session: Section B—MTWThF 11:10 am-12:30 pm.

4 Survey of Music Literature (3)

(Formerly Music Appreciation II)

Introductory study of musical forms, structures and textures; aural analysis of selected literature. First Session: Section A—MTWThF 11:10 am-12:30 pm. Second Session: Section B—MTWThF 6-7:20 pm.

103-4 History of Music (3-3)

Development of music in the Western World from the early Christian Era to the present. First Session: Music 103; Second Session: Music 104. MTWThF 9:40-11 am.

MUSIC THEORY

1 Elements of Music Theory (3)

(Formerly Music 1-2 Elements of Music (3-3))

Notation, scales, keys, intervals, terms, rhythms, ear-training, sight-singing. Second Session: MTWThF 4:10-5:30 pm.

5-6 Elementary Harmony (3-3)

Triads, inversions; chord analysis, construction and progression; part-writing, modulations, figured bass. Prerequisite: Music 1 or satisfactory passing of placement examination. First Session: Music 5; Second Session: Music 6. MTWThF 1:10-2:30 pm.

APPLIED MUSIC

EIGHT-WEEK COURSES—JUNE 18 TO AUGUST 9

*11 Piano (1)

*13 Voice (1)

*15 Organ (1)

*17 Orchestral Instrument (1)

* Individual lessons. Studio fee, \$40; hours to be arranged

- *111 Piano (1)
- *113 Voice (1)
- *115 Organ (1)
- *117 Orchestral Instrument (1)

Philosophy

R.H. Schlagel, *Chairman*

51-52 Introduction to Philosophy (3-3)

Problems of modern philosophy in relation to scientific and social developments since the Renaissance. *Philosophy 51*: theories of knowledge. *Philosophy 52*: theories of reality. Philosophy 51 or 52 may be taken independently. **First Session**: Philosophy 51; **Second Session**: Philosophy 52. MTWThF 9:40-11 am.

162 Aesthetics (3)

Nature of aesthetic experience, problems of appreciation and criticism in the arts, and theories of artistic creation. Emphasis on contemporary arts and criticism. **First Session**: MTWThF 8:10-9:30 am.

193 Contemporary European Philosophy (3)

Main currents of 20th century European philosophy: the British analytic movement, positivism, phenomenology, existentialism. **Second Session**: MTWThF 1:10-2:30 pm.

Physical Education, Health, and Recreation for Men[†]

V.J. DeAngelis, *Chairman*

1-2 Freshman Physical Education (1-1)

Five periods of supervised activity a week. Physical Education fee, \$4.50 a session. **First Session**: Physical Education 1; **Second Session**: Physical Education 2. Section A (volleyball and basketball)—MTWTF 8:10-9:10 am; Section B (swimming and badminton)—MTWThF 9:40-10:40 am; Section C (volleyball and basketball)—MTWThF 11:10 am-12:10 pm.

11-12 Sophomore Physical Education (1-1)

Five periods of supervised activity a week. Physical Education fee, \$4.50 a session. **First Session**: Physical Education 11; **Second Session**:

* Individual lessons. Studio fee, \$40; hours to be arranged.

† The University is not responsible for injuries received in intramural games, or in any of the activities of the departments of Physical Education, Health, and Recreation; and the student assumes full responsibility therefor.

Physical Education 12. Section A (volleyball and basketball)—MTWThF 8:10-9:10 am; Section B (swimming and badminton)—MTWThF 9:40-10:40 am; Section C (volleyball and basketball)—MTWThF 11:10 am-12:10 pm.

***+56 Dance Technique and Theory (1)**

Physical Education fee, \$4.50. A 3-week course, June 18 to July 5: MTWThF 9:40-11 am. (See Dance Workshop, page 35.)

***+110 Dance Workshop II (1)**

A 3-week course, June 17 to July 5: MTWThF 1:10-2:30 pm. (See Dance Workshop, page 35.)

***120 Repertory (1)**

A 3-week course, June 17 to July 5: MTWThF 3-4 pm. (See Dance Workshop, page 35.)

211 Problems and Modern Trends in Physical Education (3)

For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. A 6-week course, July 8 to August 16: MW 6:10-8 pm; conference as arranged.

216 Organization and Administration of Physical Education (3)

Basic concepts of the organization and administration of physical education at the secondary and college levels; human relations and administration presented through the "case method"; actual cases of typical administrative problems analyzed and discussed. A 6-week course, June 18 to July 26: MW 6:10-8 pm; conference as arranged.

‡230 Elementary School Physical Education (3)

For elementary education majors and classroom teachers. Current philosophy, trends, and research; their implications for curriculum, instruction, integration of subject matter, and evaluation. A 3-week course, July 8 to 26: MTWThF 9:40-11 am; conference and field activities as arranged.

231 Evaluation in Physical Education (3)

Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. A 6-week course, June 18 to July 26: TTh 6:10-8 pm; conference as arranged.

***273 Advanced Choreography (3)**

Advanced problems in creative movement and composition. Choreographing of group and solo works in dance. A 3-week course, June 18 to July 5: as arranged.

* May be repeated once for credit.

† Students who have received credit for former Physical Education 53 may not receive credit for Physical Education 56 or 110.

‡ A course requiring the full daytime attention of enrollees. Concurrent registration for another course scheduled in morning or afternoon not permitted.

280 Supervision of Physical Education, Health, and Recreation (3)

Purpose and values, principles, prevalent concepts, best accepted techniques. A 6-week course, July 8 to August 16: TTh 6:10-8 pm; conference as arranged.

***297 Advanced Topical Studies (3)**

Individual studies; critique and synthesis of research findings and of literature. Prerequisite: Education 295. A 6-week course, June 18 to July 26: as arranged.

Physical Education, Health, and Recreation for Women†

Loretta Stallings, *Chairman*

PHYSICAL EDUCATION

1-2 Freshman Physical Education (1-1)

Five periods a week chosen from the activities offered each session. Medical A classification only. Physical Education fee, \$4.50 a session.

First Session: Physical Education 1 Section A (badminton)—MTWThF 11:15 am-12:15 pm, Section B (swimming)—MTWThF 1:30-2:30 pm.

Second Session: Physical Education 2 Section A (badminton)—MTWThF 11:15 am-12:15 pm, Section B (tennis)—MTWThF 1:30-2:30 pm.

11-12 Sophomore Physical Education (1-1)

Five periods a week chosen from the activities offered each session. Medical A classification only. Physical Education fee, \$4.50 a session.

First Session: Physical Education 11 Section A (badminton)—MTWThF 11:15 am-12:15 pm, Section B (swimming)—MTWThF 1:30-2:30 pm.

Second Session: Physical Education 12 Section A (badminton)—MTWThF 11:15 am-12:15 pm, Section B (tennis)—MTWThF 1:30-2:30 pm.

***156 Dance Technique and Theory (1)**

Physical Education fee, \$4.50. A 3-week course, June 18 to July 5: MTWThF 9:40-11 am. (See Dance Workshop, page 35.)

***110 Dance Workshop II (1)**

A 3-week course, June 17 to July 5: MTWThF 1:10-2:30 pm. (See Dance Workshop, page 35.)

***120 Repertory (1)**

A 3-week course, June 17 to July 5: MTWThF 3-4 pm. (See Dance Workshop, page 35.)

* May be repeated once for credit

† The University is not responsible for injuries received in intramural games, or in any of the activities of the departments of Physical Education, Health, and Recreation; and the student assumes full responsibility therefor.

‡ Students who have received credit for former Physical Education 53 may not receive credit for Physical Education 56 or 110.

211 Problems and Modern Trends in Physical Education (3)

For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. A 6-week course, July 8 to August 16; MW 6:10-8 pm; conference as arranged.

216 Organization and Administration of Physical Education (3)

Basic concepts of the organization and administration of physical education at the secondary and college levels; human relations and administration presented through the "case method"; actual cases of typical administrative problems analyzed and discussed. A 6-week course, June 18 to July 26; MW 6:10-8 pm; conference as arranged.

***230 Elementary School Physical Education (3)**

For elementary education majors and classroom teachers. Current philosophy, trends, and research; their implications for curriculum, instruction, integration of subject matter, and evaluation. A 3-week course, July 8 to 26; MTWThF 9:40-11 am; conference and field activities as arranged.

231 Evaluation in Physical Education (3)

Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. A 6-week course, June 18 to July 26; TTh 6:10-8 pm; conference as arranged.

†273 Advanced Choreography (3)

Advanced problems in creative movement and composition. Choreographing of group and solo works in dance. A 3-week course, June 18 to July 5; as arranged.

277 Dance Expressions in Selected Cultures (3 or 6)

Study of ethnic forms of dance through reading and participation. Study may be done in the United States or the country of the dance being studied. A 6-week course, July 8 to August 16; as arranged.

280 Supervision of Physical Education, Health, and Recreation (3)

Purpose and values, principles, prevalent concepts, best accepted techniques. A 6-week course, July 8 to August 16; TTh 6:10-8 pm; conference as arranged.

†297 Advanced Topical Studies (3)

Individual studies; critique and synthesis of research findings and of literature. Prerequisite: Education 295. A 3-week course, June 18 to July 5; as arranged.

* A course requiring the full daytime attention of enrollees. Concurrent registration for another course scheduled in morning or afternoon not permitted.
† May be repeated once for credit.

Physics

H.H. Hobbs, *Chairman*

1 General Physics (4)

Topics in classical physics which form a foundation for modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration for Mathematics 6. Laboratory fee, \$11. **First Session:** Section A—lecture MTTh 1:10–3 pm, recitation WF 8:30–10 am, laboratory MWF 10:10 am–12:30 pm; Section B—lecture MTTh 1:10–3 pm, recitation WF 1:30–3 pm, laboratory MWF 3:10–5:30 pm.

2 General Physics (4)

Electricity, magnetism, and selected topics from modern physics. Prerequisite: Physics 1 or equivalent. Laboratory fee, \$11. **Second Session:** Section A—lecture MTTh 1:10–3 pm, recitation WF 8:30–10 am, laboratory MWF 10:10 am–12:30 pm; Section B—lecture MTTh 1:10–3 pm, recitation WF 1:30–3 pm, laboratory MWF 3:10–5:30 pm.

31–32 Introduction to Theoretical Physics (2–2)

Theoretical structure of physics, emphasis on appropriate analytical techniques. Prerequisite: one year of calculus and Physics 30. **First Session:** Physics 31; **Second Session:** Physics 32. MTWTh 11:10 am–12:10 pm.

299–300 Thesis Research (3–3)

Both sessions: as arranged.

Political Science*

W.H. Kraus, *Chairman*

*5–6 Introduction to Political Science (3–3)

Political Science 5: structure, powers, and processes of the American political system—Congress, the President, and the Supreme Court; elections, political parties, and pressure groups; state and local government. *Political Science 6:* nature and study of politics—theories, forms, and processes of political systems; international relations and political ideologies. **First Session:** Political Science 5A—MTWThF 11:10 am–12:30 pm. **Second Session:** Political Science 5B—MTWThF 9:40–11 am; Political Science 6—MTWThF 6–7:20 pm.

101 Far East in the Modern World (3)

First Session: MTWThF 8:10–9:30 am. (See Communist Affairs program, pages 34–35.)

111 Comparative Government and Politics (3)

Introduction to the government and politics of the principal constitutional democracies of Western Europe: Great Britain, France, and the Federal Republic of Germany; secondary reference to other Western European systems and the communist government of East Germany. **Second Session:** MTWThF 4:10–5:30 pm.

*Political Science 5–6 is prerequisite to all Political Science courses numbered above 100.

115 Government and Politics in Eastern Europe (3)

Second Session: MTWThF 11:10 am-12:30 pm. (See Communist Affairs program, pages 34-35.)

117-18 Political Theory: Nature and Growth of Western Political Thought (3-3)

Political Science 117: Antiquity to Middle Ages; forging Western political tradition. *Political Science 118*: Renaissance and Reformation to recent times. Theoretical foundations of the modern state: morals and politics, sovereignty, absolutism, resistance; liberalism, democracy, conservatism. First Session: Political Science 117; Second Session: Political Science 118. MTWThF 9:40-11 am.

119 American Political Thought (3)

(Formerly *Foundations of American Democracy*)

Introduction to political thought in the United States from colonial times to mid-19th century. First Session: MTWThF 8:10-9:30 am.

122 U.S. Constitutional Law and Politics (3)

Political and civil rights. Second Session: MTWThF 11:10 am-12:30 pm.

151 Public Administration (3)

Theory and practice of governmental administration and its relation to other public and private organizations and interests, introduction to organization theory and behavior. Second Session: MTWThF 8:10-9:30 am.

160 Modern Communist Ideologies (3)

Second Session: MTWThF 2:10-3:50 pm. (See Communist Affairs program, pages 34-35.)

171 International Politics (3)

International factors, international and domestic environments of foreign policy, global and regional patterns, general characteristics of foreign policy. First Session: MTWThF 6-7:20 pm.

172 International Organization (3)

Development and operation of the United Nations, regional organizations, and functional international organizations. Second Session: MTWThF 8:10-9:30 am.

181-82 Public International Law and Organization (3-3)

Survey of public law of nations. *Political Science 181*: emphasis on law of peace. *Political Science 182*: attention to neutrality and so-called law of war. First Session: Political Science 181—MTWThF 1:10-2:30 pm. Second Session: Political Science 182—MTWThF 6-7:20 pm.

194 Governments of China and Japan (3)

Institutions and processes of government of contemporary China and Japan, with some historical background. Attention to ideological forces. First Session: MTWThF 9:40-11 am.

197 Proseminar: International Affairs (3)

Diplomatic, economic, psychological, military problems of U.S. foreign policy. Readings, term papers, discussion. Primarily for seniors in Inter-

national Affairs curriculum; open to limited number of other qualified students. **Second Session:** MWF 11:10 am-1 pm.

299-300 **Thesis Research (3-3)**

Both sessions: as arranged.

Psychology*

B.I. Levy, *Chairman*

1 General Psychology (3)

Fundamental principles underlying human behavior. **First Session:** Section A—MTWThF 8:10-9:30 am; Section B—MTWThF 6-7:20 pm. **Second Session:** Section C—MTWThF 9:40-11 am; Section D—MTWThF 6-7:20 pm.

8 Psychology of Motivation and Personality (3)

Introduction to the psychology of personality. Principles of motivation, personality development, social and cultural factors, and assessment and description of personality emphasized. **First Session:** Section A; **Second Session:** Section B—MTWThF 1:10-2:30 pm.

22 Introduction to Educational Psychology (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. **First 3-Week Education Workshop Session, June 18 to July 5:** Section A—June 18-21; lecture 3:45-5:45 pm, small group discussions—evening. June 24-July 5; lecture 10:10-12 am; conference 9:10-10 am. **Second Session:** Section B—MTWThF 8:10-9:30 am.

29 Psychology of Childhood (3)

Genetic approach to study of the child. Emphasis on the socialization process, learning, and the child's view of the world. **First Session:** MTWThF 1:10-2:30 pm.

101 Abnormal Psychology (3)

Causes, diagnosis, treatment, and prevention of various types of maladjustments and mental disorders. **Prerequisite:** 6 semester hours in psychology, or 3 in psychology and 6 in a biological science. **First Session:** Section A—MTWThF 4:10-5:30 pm. **Second Session:** Section B—MTWThF 1:10-2:30 pm.

115 Psychology of Language and Communication (3)

Introduction to psycholinguistics and verbal behavior. Information theory, measurement of meaning, cultural and linguistic structures in the perception and learning of language. **First Session:** MTWThF 4:10-5:30 pm.

118 Physiological Psychology (3)

Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system, with

* Psychology 1 or 5-6 is prerequisite to all other courses in Psychology. Six semester hours in first-group courses are prerequisite to all second-group courses

emphasis on the relations between physiological functioning and behavior.
First Session: MTWThF 6-7:20 pm.

131 Psychological Tests (3)

Survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7.
First Session: MTWThF 4:10-5:30 pm.

145 Psychology of Management (3)

Primarily for students in the School of Engineering and Applied Science. Introduction to principles of industrial organizations and personnel selection. **First Session:** MWTh 6:10-8 pm.

151 Social Psychology (3)

Social foundations of attitudes and behavior: cognition, motivation, role-behavior, communication, small-group processes, racial attitudes, nationalism, and war. **First Session:** Section A; **Second Session:** Section B. MTWThF 9:40-11 am.

156 Psychology of Attitudes and Public Opinion (3)

Psychology of opinion formation, measurement of opinion, social determinants of attitudes, psychological processes in propaganda, bases of receptivity of propaganda, psychological warfare. **Second Session:** MTWThF 11:10 am-12:30 pm.

191 Independent Research in Psychology (3)

Opportunity for work on individual library or experimental projects. Open to qualified students by permission; arrangements must be made with the sponsoring faculty member prior to registration. May be repeated once for credit. **First Session:** Section A; **Second Session:** Section B. As arranged.

196 History and Systems of Psychology (3)

Senior capstone course which includes a survey and integration of the major viewpoints and concepts of psychology. Required of psychology majors. **First Session:** MTWThF 1:10-2:30 pm.

212 Personality Assessment by Projective Techniques (3)

Emphasis on administration and scoring of the Rorschach Test. Prerequisite: Psychology 211. **First Session:** MWTh 1:10-3 pm.

215 Personality Assessment by Multiple Procedures (3)

Consideration and use of a wide range of procedures in assessment of personality. Prerequisite: Psychology 211 and 212. **First Session:** MWTh 6:10-8 pm.

217 Seminar: Developmental Psychology (3)

Emphasis on perceptual and cognitive development. Covers major theoretical approaches and illustrates these by reference to current research problems. **First Session:** MWTh 6:10-8 pm.

219 Seminar: Topics in Advanced Clinical Psychology (3)

An examination of contemporary research and theory in the psychoses. Emphasis will be on the schizophrenic syndromes. Research on psychological processes, perception, emotion, and cognition will be considered. May be repeated for credit. **First Session:** MWTh 6:10-8 pm.

220 Seminar: Abnormal Psychology (3)

Study of selected problems in the field of abnormal psychology. **First Session:** MWTh 2:10-4 pm.

246 Seminar: Personnel Measurement Techniques (3)

Detailed consideration of techniques of personnel selection and performance evaluation. Employment tests, personal data, assessment interviews, and performance ratings. **First Session:** MWTh 6:10-8 pm.

256 Seminar: Psychology of Group Conflict (3)

An attempt to integrate evidence from animal behavior, child behavior, anthropology, psychiatry, and recent history, including World Wars I and II and the present East-West conflict. **Second Session:** MWTh 1:10-3 pm.

272 Seminar: Theories of Personality (3)

Emphasis on theoretical problems and methodology in the field of personality study. **First Session:** MWTh 6:10-8 pm.

283-84 Practicum in Clinical Psychology (3-3)

Supervised practical instruction in agencies doing clinical psychological work. **Prerequisite:** Psychology 212. Admission by permission of instructor. **First Session:** Psychology 283A and 284A; **Second Session:** Psychology 283B and 284B. As arranged.

289 Seminar: Current Topics in Experimental Psychology (3)

May be repeated for credit. **First Session:** Section A—MWTh 8:10-10 pm. The biology of learning and memory. **Second Session:** Section B—MWF 9:40-11:30 am. Introduction to data analysis.

295 Independent Research in Psychology (3)

Individual library or experimental research under supervision of staff member. Arrangements must be made with sponsoring faculty member prior to registration. May be repeated once for credit. **First Session:** Section A; **Second Session:** Section B. As arranged.

299-300 Thesis Research (3-3)

Both sessions: as arranged.

Public Administration

K.E. Stromsem, *Chairman*

***213A Administration in Government (3)**

Critical analysis of federal administrative organizations as an integral part of the political system. Roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process; special attention to centripetal and centrifugal forces. **First Session:** MWF 6:10-8 pm.

* A special section of this course, Public Administration 213B, for students in the Air Force Advanced Management Program will be offered June 10 to July 19; hours to be arranged.

221 Management in the Executive Branch (3)

Analysis of application of management theory and practice in the Executive Branch of the Federal Government; emphasis on staff responsibilities and relationships and internal organization and control. **Second Session: MWF 6:10-8 pm.**

231 Public Personnel Administration (3)

Survey of basic principles and functions of personnel administration in the public service. Roles of personnel management, recruitment, placement, wage and salary administration, training, retirement, and other personnel functions. **First Session: MWF 8:10-10 pm.**

***251A Governmental Budgeting (3)**

Survey of the basic concepts, principles, and practices in governmental budgeting; interrelationship of planning, programming, and budgeting, their role in the management process. **Second Session: MWF 8:10-10 pm.**

299 Thesis Seminar (3)

Examination of thesis standards, research philosophy, and methodology **First Session: MWF 8:10-10 pm.**

300 Thesis Research (3)

Second Session: as arranged.

Religion

R.G. Jones, Chairman

10 The New Testament (3)

Study of New Testament literature from the standpoint of occasion, purpose, dominant ideas, and permanent values. Emphasis on approach, structure, and significance of the Gospels and Epistles. **Second Session: MTWThF 9:40-11 am.**

59-60 History of Religions (3-3)

Religion 59: primitive religion and the religions of the East (Hinduism, Buddhism, Taoism, Confucianism, Shinto). *Religion 60:* religions of the West and Near East (ancient religions, Judaism, Christianity, Islam). Origins, evolution, and contemporary status in historical context. **First Session: Religion 60; Second Session: Religion 59. MTWThF 11:10 am-12:30 pm.**

103 The Prophets (3)

Development of prophetism in the Old Testament; cultural, economic, psychological, and religious factors; elements of lasting value in the prophetic teaching. Study of selected prophets. **Second Session: MTWThF 6-7:20 pm.**

* A special section of this course, Public Administration 251B, for students in the Air Force Advanced Management Program, will be offered June 10 to July 19; hours to be arranged.

172 Religion in American Culture (3)

Growth of religious bodies and institutions in relation to American culture, development of religious thought, and analysis of the contemporary religious scene. **First Session:** MTWThF 4:10-5:30 pm.

291-92 Readings and Research (3-3)

Investigation of special problems. **First Session:** Religion 291; **Second Session:** Religion 292. As arranged.

299-300 Thesis Research (3-3)

First Session: Religion 299; **Second Session:** Religion 300. As arranged.

Slavic and Oriental Languages and Literatures*

Helen Yakobson, *Chairman*

1-2 First-year Russian (3-3)

A year course: credit given on completion of Slavic 2. Beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in language laboratory. Laboratory fee, \$17.50 a session. **First Session:** Slavic 1; **Second Session:** Slavic 2. Lecture MTWThF 6-7:20 pm; laboratory†.

47 Beginning Russian for Reading Examination Candidates (0)

For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$180. **First Session:** MTWThF 7:30-8:50 pm.

49 Russian Readings for Nonmajor Students (3)

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of instructor. No academic credit for graduate students. Prerequisite: Slavic 4, 8, or 47; or equivalent. **Second Session:** MTWThF 7:30-8:50 pm.

91-92 Introduction to Russian Literature (3-3)

Survey of Russian literature, in translation, from earliest periods through literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion—in English. **First Session:** Slavic 91; **Second Session:** Slavic 92. MTWThF 7:30-8:50 pm.

* A standardized placement examination administered at registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course, with credit assigned on the usual basis.
† For laboratory sections, see Hourly Schedule, pages 88-94. All First Session language laboratories begin June 20.

Sociology*

R.G. Brown, *Chairman*

*1-2 Introductory Sociology (3-3)

Development of culture and personality, impact of groups and institutions on man's social behavior. Survey of fields within sociology. **First Session:** Sociology 1A—MTWThF 9:40-11 am; Sociology 2A—MTWThF 11:10 am-12:30 pm. **Second Session:** Sociology 1B—MTWThF 9:40-11 am; Sociology 2B—MTWThF 1:10-2:30 pm.

41 American Social Problems (3)

Analysis of major social problems confronting the United States. Factors producing social problems, their nature and treatment. **First Session:** MTWThF 1:10-2:30 pm.

125 Sociology of Religion (3)

Introduction to history of the discipline; analysis of reciprocal impact of secular upon religious and religious upon secular institutions. **First Session:** MTWThF 6-7:20 pm.

129 Race and Minority Groups (3)

Analysis of relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. **Second Session:** MTWThF 11:10 am-12:30 pm.

139 Society and the Deviant (3)

Analysis of relationship of society, socialization, and deviancy. Social responses to deviancy and criminal offenders; rehabilitative programs in community, courts, and schools. Prerequisite: Sociology 51. **Second Session:** MTWThF 9:40-11 am.

141 Social Research Methods (3)

Introduction to scientific method in the development of social theory and the solution to social problems. **Second Session:** MTWThF 4:10-5:30 pm.

149 Development of Social Theory (3)

Systematic study of important schools of sociological theory, both European and American development; evaluation of scientific contributions of each school. **First Session:** MTWThF 1:10-2:30 pm.

191 Current Emphases in Sociology (3)

Analysis and evaluation of recent developments in the general field of sociology and a review and discussion of basic concepts. Required course for all Sociology majors in the senior year. **First Session:** Section A—MTWThF 9:40-11 am. **Second Session:** Section B—MTWThF 11:10 am-12:30 pm.

295 Research (3)

May be repeated once for credit. **First Session:** Section A; **Second Session:** Section B. As arranged.

* Sociology 1 is prerequisite to second- and third-group courses in Sociology.

299-300 Thesis Research (3-3)

First Session: Sociology 299; **Second Session:** Sociology 300. As arranged.

Spanish*

Administered by the Department of Romance Languages and Literatures.
J.A. Frey, *Chairman*

1-2 First-year Spanish (3-3)

A year course: credit given on completion of Spanish 2. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. **First Session:** Spanish 1; **Second Session:** Spanish 2. MTWThF 9:40-11 am; laboratory†.

3-4 Second-year Spanish (3-3)

A year course: credit given on completion of Spanish 4. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in language laboratory. Laboratory fee, \$17.50 a session. Prerequisite: Spanish 1-2, 2x, or two years of high school Spanish. **First Session:** Spanish 3; **Second Session:** Spanish 4. Section A—MTWThF 8:10-9:30 am; Section B—MTWThF 7:30-8:50 pm; laboratory†.

9-10 Spanish Conversation and Composition (3-3)

Prerequisite: Spanish 4 or equivalent and permission of instructor.
First Session: Spanish 9; **Second Session:** Spanish 10. MTWThF 9:40-11 am.

129 The Romantic Drama in Spain (3)

Lectures on the Spanish Romantic Drama; class analysis of representative plays; collateral reading. **First Session:** MTWThF 1:10-2:30 pm.

156 Spanish American Literature to 1880 (3)

Literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. **First Session:** MTWThF 6-7:20 pm.

201 Grammar, Composition, and Stylistics (3)

For secondary teachers of the Spanish language and graduate students preparing to teach in secondary schools. **First Session:** MTWThF 4:10-5:30 pm.

* A standardized placement examination administered at registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course with credit assigned on the usual basis.

† For laboratory sections, see the Hourly Schedule, pages 83-94. All First Session language laboratories begin June 20.

‡ Spanish 3-4 or 6 is required, and Spanish 51-52 is recommended, as prerequisite to all second-group courses in Spanish.

Special Education

Perry Botwin, *Chairman*

SIX-WEEK COURSES—JUNE 18 TO JULY 26

- 241 **Preprofessional Internship: Emotionally Disturbed Children** (3)
Practicum experience early in the training sequence. Directed observation of, and interaction with, emotionally disturbed children in a field setting, with supervision of University staff. Admission by permission of instructor. As arranged.
- 291 **Practicum in Teaching Emotionally Disturbed Children** (6)
Supervised classroom teaching of emotionally disturbed children. Minimum of 150 clock hours required. As arranged.
- 292 **Practicum in Teaching Crippled or Health Impaired** (6)
Supervised classroom teaching of children with orthopedic, neurological, and other health-related disorders. Minimum of 150 clock hours required. As arranged.
- 307 **Seminar: Selected Readings in Research with Exceptional Children** (3)
Research topic is chosen and critical reviews and abstracts of all pertinent studies are prepared. Admission by permission of instructor. May be repeated once for credit. As arranged.

FIRST 3-WEEK EDUCATION WORKSHOP SESSION—JUNE 18 TO JULY 5

Classes meet Monday through Friday. Each workshop course requires the full day; concurrent registration for another daytime course is not permitted. June 18 to 21—small group discussions, evening; June 24 to July 5—small group discussions and field work, afternoon.

- 201 **Education of Exceptional Children** (3)
For prospective teachers. Educational modifications necessary to accommodate children with mental, physical, social, and emotional deviations in a school program. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education. June 18 to 21: lecture 3:45–5:45 pm. June 24 to July 5: lecture 8:10–10 am; conference 10:10–11 am.
- 240 **Nature and Needs II: the Emotionally Disturbed** (3)
Analysis of educational provisions for seriously disturbed children: definitions, characteristics, identification, and programs for prevention and re-education. Admission by permission of instructor. June 18 to 21: lecture 3:45–5:45 pm. June 24 to July 5: lecture 8:10–10 am; conference 10:10–11 am.
- 304 **Recent Research and Trends of Exceptional Children** (3)
(Formerly *Recent Research and Trends in Mental Retardation*)
Definition, theories, classifications; social, medical, psychological, and educational rehabilitation measures. Emphasis on current contributions of biology, sociology, and psychology to educational theory and practice. Admission by permission of instructor. June 18 to 21: lecture 3:45–

5:45 pm. June 24 to July 5: lecture 10:10-11 am; conference 8:10-10 am.

306 Guidance and Counseling of Exceptional Children (3)

Educational, mental, social, vocational guidance of exceptional children and youth. Role of teacher in parent counseling. Community agencies involved in postschool rehabilitation, guidance, and recreational service for exceptional children. Admission by permission of the instructor.

June 18 to 21: lecture 3:45-5:45 pm. June 24 to July 5: lecture 10:10-11 am; conference 8:10-10 am.

491 Dissertation Research (arr.)

As arranged.

SECOND 3-WEEK EDUCATION WORKSHOP SESSION—JULY 8 TO JULY 26

Classes meet Monday through Friday. Concurrent registration for another day-time course is not permitted, because each workshop course requires the full day—lecture and conference in the morning; small group discussion and field work or laboratory in the afternoon.

202 Nature and Needs I: the Mentally Retarded (3)

Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation; psychological and sociological implications. Principles of learning with respect to teaching retarded children. Prerequisite: Psychology 22 or equivalent, and at least 6 semester hours of foundation courses in Education. Lecture 8:10-10 am; conference 10:10-12 am.

260 Nature and Needs III: Crippled or Health Impaired (3)

Theory of crippling and other health-impairing conditions as they affect the needs of children. Examination of curricula. Prerequisite: Special Education 201 and permission of instructor. Lecture 10:10-12 am; conference 8:10-10 am.

301 Psychology of Exceptional Children (3)

Psychological problems related to social, emotional, physical, and learning characteristics of handicapped children. Admission by permission of instructor. Lecture 10:10-12 am; conference 8:10-10 am.

303 Administration and Supervision of Special Education (3)

Philosophy and nature of special education; program organization, administration, and development. Surveying local level needs; program evaluation and supervision. Admission by permission of instructor. Lecture 8:10-10 am; conference 10:10-11 am.

340 Mental Health of Culturally Deprived and Emotionally Disturbed Children (3)

Mental health problems affecting the culturally deprived child's vocational, educational, and emotional needs; teacher-child relationships; language differences in socioeconomic environments. Admission by permission of instructor. Lecture 8:10-10 am; conference 10:10-11 am.

360 Medical Aspects of Exceptional Children (3)

Adaptation problems of crippled or other health-impaired children. Causes and treatment of major medical disorders. Planning child's environment

to meet his special needs. Prerequisite: Special Education 201 and permission of instructor. Lecture 8:10-10 am; conference 10:10-11 am.

491 Dissertation Research (arr.)

As arranged.

THIRD 3-WEEK WORKSHOP SESSION—JULY 29 TO AUGUST 16

Classes meet Monday through Friday. Concurrent registration for another day-time course is not permitted, because each workshop course requires the full day—lecture and conference in the morning; small group discussion and field work or laboratory in the afternoon.

203 Teaching Mentally Retarded Children (3)

Educational methods and curricula developed for the mentally retarded from nursery school through high school. Organization and planning of instructional activities; selection and preparation of materials. Prerequisite: Special Education 201 and 202, or permission of instructor. Lecture 8:10-10 am; conference 10:10-11 am.

261 Teaching Crippled and Other Health-impaired Children in School, Home, and Hospital (3)

Programs, methods, and materials for teaching children with orthopedic and other health related disorders. Organization and planning of instructional activities, including home and hospital teaching. Prerequisite: Special Education 201 and 260, or permission of instructor. Lecture 10:10-12 am; conference 8:10-10 am.

302 Problems and Issues in Special Education (3)

(Formerly Problems and Issues in Mental Retardation)

Consideration of major current problems and issues in special education. Admission by permission of instructor. Lecture 10:10-12 am; conference 8:10-10 am.

361 Neurological Aspects of Exceptional Children (3)

Medically oriented approach. Etiology of gross disorders of central nervous system and brain such as poliomyelitis, brain injury, aphasia, arthritis, epilepsy, spina bifida, and related conditions. Prerequisite: Special Education 201 and permission of instructor. Lecture 8:10-10 am; conference 10:10-12 am.

491 Dissertation Research (arr.)

As arranged.

Speech and Drama

L.P. Leggette, *Chairman*

A Speech and Hearing Clinic

No academic credit. Diagnostic and remedial work. See "Speech and Hearing Clinic," page 20.

1 Effective Speaking (3)

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2. **First Session:** Section A—MTWThF 11:10 am–12:30 pm; Section B—MTWThF 6–7:20 pm. **Second Session:** Section C—MTWThF 11:10 am–12:30 pm.

11 Voice and Diction (3)

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to study of sounds of English, standards of speech. Class instruction in problems of rate, volume, pitch, quality. Recording fee, \$4. **First Session:** Section A—MTWThF 8:10–9:30 am. **Second Session:** Section B—MTWThF 9:40–11 am.

32 Oral Reading (3)

Reading to others, theory and practice in problems of interpreting the printed page. Prerequisite: Speech and Drama 11. Recording fee, \$2. **First Session:** MTWThF 9:40–11 am.

121 Group Discussion and Conference Leadership (3)

Process of thinking and problem solving in committees and small groups; methods of leading discussions and conferences. Prerequisite: 6 hours of speech or permission of instructor. **First Session:** MTWThF 1:10–2:30 pm.

157 Workshop in Producing Shakespeare (2)

June 17 to August 30. (See Workshop in Producing Shakespeare, page 36.)

169 Creative Dramatics (3)

Study of creative dramatics and its use as a learning tool. **First Session:** MTWThF 1:10–2:30 pm.

171 Introduction to Speech Pathology and Audiology (3)

Survey of the disorders of speech and hearing, including symptomatology, testing, causation; emphasis on problems encountered by the classroom teacher. **First Session:** MTWThF 4:10–5:30 pm.

183 Clinical Procedures in Speech and Hearing (1)

Method, theory, and practice in preparation of therapeutic objectives and materials; practice and observation in speech and hearing evaluation. May be repeated for a total of 3 semester hours. Prerequisite: Speech and Drama 172 or 182. **First Session:** Section A; **Second Session:** Section B. As arranged.

184 Clinical Practice in Speech and Hearing (1)

Supervised case work in speech and hearing—the University Speech and Hearing Clinic and selected off-campus facilities. May be repeated for a total of 3 semester hours. Prerequisite or concurrent registration: Speech and Drama 183. **First Session:** Section A; **Second Session:** Section B. As arranged.

277 Advanced Clinical Procedures in Speech and Hearing (1)

First Session: Section A; **Second Session:** Section B. As arranged.

- 278 **Advanced Clinical Practice in Speech and Hearing** (1)
First Session: Section A; Second Session: Section B. As arranged.
- 291 **Seminar: Speech Pathology** (3)
Review of the literature concerning structure and function of normal and pathological vocal mechanisms; consideration of evaluative and therapeutic techniques. Second Session: as arranged.
- 292 **Seminar: Audiology** (3)
Applied Audiology for children: rationale and philosophy underlying the techniques used in auditory evaluations on children. First Session: as arranged.
- 295 **Independent Research in Speech and Hearing** (arr.)
May be repeated for credit. First Session: Section A; Second Session: Section B. As arranged.
- 299-300 **Thesis Research** (3-3)
First Session: Speech and Drama 299; Second Session: Speech and Drama 300. As arranged.

Statistics*

Solomon Kullback, *Chairman*

- 51 **Introduction to Business and Economic Statistics** (3)
Elementary principles for analyzing and interpreting statistical data: characteristic values; measures of variability, sampling, time series analysis, and simple correlation. Laboratory fee, \$9. First Session: lecture MWF 9:40-11 am, laboratory TTh 9:40-11 am and 1 hour to be arranged.
- 53 **Introduction to Statistics in Psychology and Education** (3)
Averages, dispersion, raw and derived scores, frequency distributions, normal curve, correlation, elementary sampling, introduction to estimation and tests of hypotheses. Laboratory fee, \$9. First Session: lecture MWF 6-7:20 pm, laboratory TTh 6-7:20 pm and 1 hour to be arranged.
- †91 **Principles of Statistical Methods** (3)
Variables and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Laboratory fee, \$9. First Session: lecture MWF 1:10-2:30 pm, laboratory TTh 1:10-2:30 pm and 1 hour to be arranged.
- 97 **Introduction to Computer Programming** (3)
Computer and programming concepts. High-level language programs written by students will be run on the University computer. Laboratory fee, \$20. First Session: lecture MWF 6-7:20 pm, laboratory TTh 6-7:20 pm.

* Prerequisite to all first-group courses: one entrance unit in algebra. Of first-group courses, Statistics 51, 53, and 91 are related in their subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.

† Statistics 91 is for Statistics majors, for students in engineering and in the biological and physical sciences.

***104 Statistics in the Behavioral Sciences and Education I (3)**

Introductory study of statistical techniques for research problems in behavioral sciences and education. Laboratory fee, \$9. **Second Session:** lecture MWF 3:40-5 pm, laboratory TTh 3:40-5 pm and 1 hour to be arranged.

107 Statistics for Engineers (3)

Probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, engineering applications. Prerequisite: differential and integral calculus. **An 8-week course, June 18 to August 9: MW 5:30-8 pm.**

118 Regression Analysis (3)

(Formerly Correlation and the Chi-square Test)

Regression and correlation theory: simple, partial, and multiple. Prerequisite: 3 semester hours selected from Statistics 91, 104, 107. Laboratory fee, \$9. **Second Session:** lecture MWF 6-7:40 pm, laboratory TTh 6-7:20 pm and 1 hour to be arranged.

119 Bases of Statistical Decision Making (3)

For students in the Navy Graduate Financial Management Program only. Introduction to techniques of decision making, with emphasis on applications rather than theory. Includes: binomial distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference. **June 3 to July 26: lecture TTh 9:40-11:20 am; laboratory TTh 8:10-9:30 am.**

120 Principles of Statistical Analysis (3)

For students in the Air Force Advanced Management Program only. Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing hypotheses. **June 10 to July 19: lecture MW 9:40-11:20 am; laboratory MW 8:10-9:30 am.**

155 Introduction to Probability (3)

Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectations, laws of large numbers. Prerequisite: one entrance unit in algebra. **An 8-week course, June 18 to August 9: TTh 6:10-8:40 pm.**

297 Seminar: Problems in Mathematical Statistics (3)

An 8-week course, June 18 to August 9: TTh 4:10-6 pm.

299-300 Thesis Research (3-3)

Both sessions: as arranged.

* May not be taken for credit by students who have received credit for Statistics 51, 53, or 91.

HOURLY SCHEDULE*

FIRST SESSION, JUNE 17 TO JULY 24

MORNING CLASSES

8:10	9:40	11:10
Art 106 (to 9:30)	Acct 1A (to 11)	Art 71 (to 12:30)
Chem 11 (MWF to 1; TTh to 11:10)	Anth 1 (to 11)	Art 103 (to 12:30)
Chem 22 (to 12:30)	Art 31 (to 11)	B Ad 191 (to 12:30)
Chem 51 (to 12:30)	Art 41A (9-12)	CI L 113A (to 12:30)
Fren 1 lect (to 9:30)	Art 42A (9-12)	Econ 102 (to 12:30)
Fren 3M lab (MTh 8:40- 9:30)	Art 61 (9-12)	Econ 181 (to 12:30)
†HCA 203 lect (TTh 8-10)	Art 65A (9-12)	Engl 1 (to 12:30)
Hist 39 (to 9:30)	Art 66A (9-12)	Engl 142 (to 12:30)
Ital 1M lab (MTh 8:40- 9:30)	Art 81 (9-12)	Engl 175 (to 12:30)
Math 9A (to 9:30)	Art 82 (9-12)	Hist 40A (to 12:30)
Phil 162 (to 9:30)	Art 108 (to 11)	Hist 150 (to 12:30)
PE M 1A (to 9:10)	Art 131 (9-12)	Hist 276 (MWF to 1)
PE M 11A (to 9:10)	Art 132 (9-12)	Ital 3 lect (to 12:30)
Phys 1A rec (WF 8:30- 10)	Art 143 (9-12)	Math 21A (to 12:30)
P Sc 101 (to 9:30)	Art 157 (9-12)	Mus 4A (to 12:30)
P Sc 119 (to 9:30)	Art 158 (9-12)	PE M 1C (to 12:10)
Psyc 1A (to 9:30)	Art 179 (9-12)	PE M 11C (to 12:10)
Span 1M lab (MTh 8:40- 9:30)	Art 180 (9-12)	PE W 1A (11:15-12:15)
Span 3A lect (to 9:30)	Art 189 (9-12)	PE W 11A (11:15-12:15)
Sp&D 11A (to 9:30)	Art 190 (9-12)	Phys 31 (MTWTh to 12:10)
	Art 279 (9-12)	P Sc 5A (to 12:30)
	Art 280 (9-12)	Rel 60 (to 12:30)
	Art 281 (9-12)	Soc 2A (to 12:30)
	B Sc 1A (to 1)	Sp&D 1A (to 12:30)
	CI L 1 (to 11)	Ital 3 lect (to 12:30)
	Econ 1A (to 11)	
	Engl 51 (to 11)	
	Fren 1M lab (MTh to 10:30)	
	Fren 3A lect (to 11)	
	Fren 9 (to 11)	
	Fren 256 (to 11)	
	Geog 151 (to 11)	
	Geol 1 (to 1)	
	Hist 71A (to 11)	
	Hist 175 (to 11)	
	Ital 1 lect (to 11)	
	Ital 3M lab (MTh to 10:30)	
	Math 15 (to 11)	
	Math 139 (to 11)	
	Mus 103 (to 11)	
	Phil 51 (to 11)	

* Classes meet Monday through Friday unless otherwise indicated. Seminars and research courses for which hours are to be arranged, and courses in the School of Education will be found under the departmental announcements.
† June 18 to August 9.

MORNING CLASSES (Continued)

9:40

PE M 1B (to 10:40)
 PE M 11B (to 10:40)
 Phys 1A lab (MWF
 10:10-12:30)
 P Sc 117 (to 11)
 P Sc 194 (to 11)
 Psyc 151A (to 11)
 Soc 1A (to 11)
 Soc 191A (to 11)
 Span 1 lect (to 11)
 Span 3M lab (MTh to
 10:30)
 Span 9 (to 11)
 Sp&D 32 (to 11)
 Stat 51 lect (MWF to 11)
 Stat 51 lab (TTh to 11)

AFTERNOON CLASSES

1:10

4:10

5:00

Anth 2 (to 2:30)
 *Ap S 113 (MW to 3:40)
 Art 1A (to 2:30)
 Art 21 (1-4)
 Art 22 (1-4)
 Art 41B (1-4)
 Art 42B (1-4)
 Art 51 (1-4)
 Art 52 (1-4)
 Art 65B (1-4)
 Art 66B (1-4)
 Art 125 (1-4)
 Art 126 (1-4)
 Art 127 (1-4)
 Art 128 (1-4)
 Art 137 (1-4)
 Art 144 (1-4)
 Art 171A (1-4)
 Art 246 (to 2:30)
 Art 265 (1-4)
 Art 266 (1-4)
 Art 275 (1-4)
 B Sc 143 lect (to 2:30)
 B Sc 143 lab (MWF
 2:30-5)
 B Ad 51 (to 2:30)

*Ap S 85 (TTh to 6:40)
 Art 141 (to 5:30)
 B Ad 118 (to 5:30)
 B&PA 203 (MWF to 6)
 *E Ad 269 (MW to 6:40)
 Engl 135 (to 5:30)
 Engl 174 (to 5:30)
 Fren 201 (to 5:30)
 Hist 138 (to 5:30)
 Hist 164 (to 5:30)
 Hist 193 (to 5:30)
 Phys 1B lab (MWF
 3:10-5:30)
 Psyc 101A (to 5:30)
 Psyc 115 (to 5:30)
 Psyc 131 (to 5:30)
 Rel 172 (to 5:30)
 Span 201 (to 5:30)
 Sp&D 171 (to 5:30)
 *Stat 297 (TTh to 6)

Fren 3N lab (MTh to
 5:50)
 Germ 1M lab (MTh to
 5:50)
 Germ 3M lab (MTh to
 5:50)

* June 18 to August 9.

AFTERNOON CLASSES (*Continued*)

1:10

Fren 51 (to 2:30)
 Fren 109 (to 2:30)
 Fren 130 (to 2:30)
 Geog 51 (to 2:30)
 Hist 182 (to 2:30)
 Hist 291 (TTh to 4)
 Hist 341 (MWTh to 3)
 Math 23 (to 2:30)
 Mus 5 (to 2:30)
 PE W 1B (1:30-2:30)
 PE W 11B (1:30-2:30)
 Phys 1A lect (MTTh to 3)
 Phys 1B lect (MTTh to 3)
 Phys 1B rec (WF 1:30-3)
 P Sc 181 (to 2:30)
 Psys 8A (to 2:30)
 Psys 29 (to 2:30)
 Psys 196 (to 2:30)
 Psys 212 (MWTh to 3)
 Psys 220 (MWTh 2:10-4)
 Soc 41 (to 2:30)
 Soc 149 (to 2:30)
 Span 129 (to 2:30)
 Sp&D 121 (to 2:30)
 Sp&D 169 (to 2:30)
 Stat 91 lect (MWF to 2:30)
 Stat 91 lab (TTh to 2:30)

EVENING CLASSES

6:00	7:30	8:10
Acct 1B (to 7:20) *Acct 101 (MWF to 7:30) Acct 115A (to 7:20) Acct 193 (to 7:20) *Ap S 59 (MW 6:10-9:30) *Ap S 115 (TTh 6:10-8:40) *Ap S 211 (MW 6:10-8:40) Ap S 273 (TTh 6:10-9:50) †Art 41C (MWF to 9) †Art 42C (MWF to 9)	B Sc 127 lab (MWF to 9:30) Chin 1 lab (MTh to 8:20) Engl B (to 8:50) Germ 1N lab (MTh to 8:20) Germ 3 lect (to 8:50) Math 111 (to 8:50) Math 122 (to 8:50) Slav 1 lab (MTh to 8:20) Slav 47 (to 8:50) Slav 91 (to 8:50) Span 3B lect (to 8:50)	*Acct 276 (MW to 10) B Ad 241 (MWF to 10) B Ad 299 (MWF to 10) B&PA 201A (MWF to 10) B&PA 207 (MWF to 10) Psys 289A (MWTh to 10) P Ad 231 (MWF to 10) P Ad 299 (MWF to 10)

* June 18 to August 9.
 † TTh as arranged.

EVENING CLASSES (*Continued*)

6:00

- * Art 65C (MWF to 9)
- * Art 66C (MWF to 9)
- † Art 159 lect (MWF to 9)
- † Art 160 lect (MWF to 9)
- * Art 171B (MWF to 9)
- * Art 172 (MWF to 9)
- B Sc 1B (to 9:20)
- B Sc 127 lect (to 7:20)
- B Ad 105 (to 7:20)
- B Ad 141 (to 7:20)
- B Ad 298 (MWF 6:10-8)
- B&PA 211 (MWF 6:10-8)
- B&PA 221 (MWF 6:10-8)
- B&PA 287 (MWF 6:10-8)
- Chem 111 (to 7:20)
- Chin 1 lect (to 7:20)
- Econ 1B (to 7:20)
- Econ 217 (MWTh 6:10-8)
- Engl A (to 7:20)
- Engl 71 (to 7:20)
- Engl 222 (MWTh 6:10-8)
- Fren 3B lect (to 7:20)
- Fren 49 (to 7:20)
- Geog 210 (MWTh 6:10-8)
- Germ 1 lect (to 7:20)
- Germ 3N lab (MTh 6:30-7:20)
- Germ 47 (to 7:20)
- Hist 72A (to 7:20)
- Hist 208 (MWF 6:10-8)
- Hist 262 (MWF 5:30-7:20)
- Math 3 (to 7:20)
- Math 22A (to 7:20)
- Math 113 (MTWTh to 7:40)
- Math 268 (to 7:20)
- Mus 3A (to 7:20)
- P Sc 171 (to 7:20)
- Psyc 1B (to 7:20)
- Psyc 118 (to 7:20)
- Psyc 145 (MWTh 6:10-8)
- Psyc 215 (MWTh 6:10-8)
- Psyc 217 (MWTh 6:10-8)
- Psyc 219 (MWTh 6:10-8)
- Psyc 246 (MWTh 6:10-8)
- Psyc 272 (MWTh 6:10-8)
- P Ad 213A (MWF 6:10-8)
- Slav 1 lect (to 7:20)
- Soc 125 (to 7:20)
- Span 3N lab (MTh 6:30-7:20)
- Span 156 (to 7:20)
- Sp&D 1B (to 7:20)

* TTh as arranged.

† Laboratory TTh as arranged.

EVENING CLASSES (*Continued*)

6:00

Stat 53 lect (MWF to 7:20)
 Stat 53 lab (TTh to 7:20)
 Stat 97 lect (MWF to 7:20)
 Stat 97 lab (TTh to 7:20)
 *Stat 107 (MW 5:30-8)
 *Stat 155 (TTh 6:10-8:40)

SECOND SESSION, JULY 25 TO AUGUST 30

MORNING CLASSES

8:10	9:40	11:10
Art 149 (to 9:30)	Anth 153 (to 11)	Art 72 (to 12:30)
Chem 12 (MWF to 1; TTh to 11:10)	Art 32 (to 11)	CIL 113B (to 12:30)
Chem 52 (to 1:30)	Art 113 (to 11)	Econ 147 (to 12:30)
Econ 101 (to 9:30)	Art 124 (9-12)	Engl 40 (to 12:30)
Fren 2 lect (to 9:30)	Art 153 (9-12)	Engl 162 (to 12:30)
Fren 4M lab (MTh 8:40- 9:30)	B Sc 2A (to 1)	Engl 176 (to 12:30)
Hist 71B (to 9:30)	B Sc 106 (to 11)	Geog 165 (to 12:30)
Hist 173 (to 9:30)	CIL 2 (to 11)	Hist 147 (to 12:30)
Ital 2M lab (MTh 8:40- 9:30)	Econ 2A (to 11)	Ital 4 lect (to 12:30)
PE M 2A (to 9:10)	Engl 2 (to 11)	Math 22B (to 12:30)
PE M 12A (to 9:10)	Engl 52 (to 11)	Mus 3B (to 12:30)
Phys 2A rec (WF 8:30- 10)	Fren 2M lab (MTh to 10:30)	PE M 2C (to 12:10)
P Sc 151 (to 9:30)	Fren 4A lect (to 11)	PE M 12C (to 12:10)
P Sc 172 (to 9:30)	Fren 10 (to 11)	PE W 2A (11:15-12:15)
Psyc 22B (to 9:30)	Geog 52 (to 11)	PE W 12A (11:15-12:15)
Span 2M lab (MTh 8:40- 9:30)	Geol 2 (to 1)	Phys 32 (MTWTh to 12:10)
Span 4A lect (to 9:30)	Hist 40B (to 11)	P Sc 115 (to 12:30)
	Hist 72B (to 11)	P Sc 122 (to 12:30)
	Hist 187 (to 11)	P Sc 197 (MWF to 1)
	Ital 2 lect (to 11)	Psyc 156 (to 12:30)
	Ital 4M lab (MTh to 10:30)	Rel 59 (to 12:30)
	Math 10 (to 11)	Soc 129 (to 12:30)
	Math 16 (to 11)	Soc 191B (to 12:30)
	Math 140 (to 11)	Sp&D 1C (to 12:30)
	Mus 104 (to 11)	
	Phil 52 (to 11)	
	PE M 2B (to 10:40)	
	PE M 12B (to 10:40)	
	Phys 2A lab (MWF 10:10-12:30)	
	P Sc 5B (to 11)	
	P Sc 118 (to 11)	
	Psyc 1C (to 11)	
	Psyc 151B (to 11)	

MORNING CLASSES (*Continued*)

9:40

Psyc 289B (MWF to 11:30)
 Rel 10 (to 11)
 Soc 1B (to 11)
 Soc 139 (to 11)
 Span 2 lect (to 11)
 Span 4M lab (MTh to 10:30)
 Span 10 (to 11)
 Sp&D 11B (to 11)

AFTERNOON CLASSES

1:10

Art 1B (to 2:30)
 Art 154 (1-4)
 Art 163 (1-4)
 B Ad 102 (to 2:30)
 Econ 1C (to 2:30)
 Engl 170 (to 2:30)
 Geol 103 (MTWTh to 2:50)
 Hist 371 (TTh 2:10-5)
 Math 24 (to 2:30)
 Mus 6 (to 2:30)
 Phil 193 (to 2:30)
 PE W 2B (1:30-2:30)
 PE W 12B (1:30-2:30)
 Phys 2A lect (MTTh to 3)
 Phys 2B lect (MTTh to 3)
 Phys 2B rec (WF 1:30-3)
 P Sc 160 (2:10-3:50)
 Psyc 8B (to 2:30)
 Psyc 101B (to 2:30)
 Psyc 256 (MWTh to 3)
 Soc 2B (to 2:30)

4:10

B Ad 131 (to 5:30)
 B Ad 231 (MWF to 6)
 B&PA 201B (MWF to 6)
 B&PA 204 (MWF to 6)
 Engl 136 (to 5:30)
 Math 9B (to 5:30)
 Mus 1 (to 5:30)
 Phys 2B lab (MWF 3:10-5:30)
 P Sc 111 (to 5:30)
 Soc 141 (to 5:30)
 Stat 104 lect (MWF 3:40-5)
 Stat 104 lab (TTh 3:40-5)

5:00

Fren 4N lab (MTh to 5:50)
 Germ 2M lab (MTh to 5:50)
 Germ 4M lab (MTh to 5:50)

EVENING CLASSES

6:00

Acct 2 (to 7:20)
 Acct 132 (to 7:20)
 Acct 215A (MWF 6:10-8)
 Ap S 274 (TTh 6:10-9:50)
 B Sc 2B (to 9:20)
 B Sc 145 (to 8:50)
 B Ad 161 (to 7:20)
 B Ad 209 (MWF 6:10-8)
 B Ad 232 (MWF 6:10-8)

7:30

Acct 115C (to 8:50)
 Chin 2 lab (MTh to 8:20)
 Germ 2N lab (MTh to 8:20)
 Germ 4 lect (to 8:50)
 Germ 49B (to 8:50)
 Math 112 (to 8:50)
 Math 124 (to 8:50)
 Slav 2M lab (MTh to 8:20)
 Slav 49 (to 8:50)

8:10

P Ad 251A (MWF to 10)

EVENING CLASSES (*Continued*)

6:00	7:30
B&PA 218 (MWF 6:10-8)	Slav 92 (to 8:50)
B&PA 263 (MWF 6:10-8)	Span 4B lect (to 8:50)
Chem 112 (to 7:20)	
Chin 2 lect (to 7:20)	
Econ 2B (to 7:20)	
Econ 121 (to 7:20)	
Econ 182 (to 7:20)	
Engl 72 (to 7:20)	
Engl 278 (MWTh 6:10-8)	
Fren 4B lect (to 7:20)	
Germ 2 lect (to 7:20)	
Germ 4N lab (MTh 6:30-7:20)	
Germ 49A (to 7:20)	
Hist 396 (MWF 6:10-8)	
Math 6 (to 7:20)	
Math 21B (to 7:20)	
Math 157 (to 7:20)	
Math 269 (to 7:20)	
Mus 4B (to 7:20)	
P Sc 6 (to 7:20)	
P Sc 182 (to 7:20)	
Psyc 1D (to 7:20)	
P Ad 221 (MWF 6:10-8)	
Rel 103 (to 7:20)	
Slav 2 lect (to 7:20)	
Span 4N lab (MTh 6:30-7:20)	
Stat 118 lect (MWF to 7:40)	
Stat 118 lab (TTh to 7:20)	

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Emily Claire Davis, California B.S. 1949, Columbia University	Richard Bruce Holcomb, Oklahoma A.B. 1960, A.M. 1963, University of Oklahoma
James Arthur Dillian, Florida B.S. 1945, U.S. Coast Guard Academy M.S. in I.A. 1965, The George Washington University	Dwight Jerome Holter, Virginia B.S. 1959, M.S. 1963, University of North Dakota
Fred Gene Favor, Arkansas A.B. 1964, University of Arkansas	Roger Samuel Honig, Maryland B.B.A. 1964, The George Washington University
Penny Eloy Flores, New Mexico A.B. 1963, New Mexico Highlands University	Bowen Isaac Hosford, Virginia A.B. 1939, Emory University A.M. 1956, American University
Brian Nicholas Flynn, New Jersey A.B. 1964, Rutgers, the State University	Thomas John Hughes, Jr., Virginia A.B. 1964, University of Notre Dame
Mark Kenneth Frank III, Florida B.S. in F.S. 1964, Georgetown University	Raymond Lee Kamrath, Maryland A.B. 1961, University of Montana
Hona Ely Freedman, Virginia A.B. 1962, Mount Holyoke College	Frank Wilson Kiel, Pennsylvania A.B. 1950, University of Pittsburgh M.D. 1954, The George Washington University
	John Lawson Kluttz, Virginia A.B. 1964, University of Virginia

James Tate Lambie, Virginia
 B.S. in B.A. 1964, Carson-Newman College
 Dennis Ashley Laskin, Virginia
 A.B. 1964, Ohio State University
 Stephan Ewbank Lawton, Oklahoma
 A.B. 1964, University of Oklahoma
 Jon Gustave Lotis, Pennsylvania
 B.B.A. 1963, University of Pittsburgh
 Bert Martin Luna, Hawaii
 A.B. 1960, A.M. 1961, Emory University
 Thomas Leib Moorhead, Ohio
 B.S. 1959, U.S. Military Academy
 Joseph Edward Moran, Maryland
 A.B. 1963, University of Maryland
 William Gerard Murphy, New York
 A.B. 1962, University of Florida
 Togo Nakagawa, Hawaii
 B.B.A. 1963, University of Hawaii
 Thomas Richard Nedrich, Pennsylvania
 A.B. 1965, Pennsylvania State College, Indiana
 Norman Leon Norris, Virginia
 B.S. 1964, Michigan State University
 Frederick James O'Brien, Maryland
 A.B. 1964, University of Hawaii
 Terence Lee Ogden, District of Columbia
 A.B. 1964, Syracuse University
 Barbara Cherrix O'Leary, District of Columbia
 A.B. 1962, Pembroke College
 Anthony Joseph Sarli, Jr., Virginia
 B.S. 1963, Pennsylvania State University

Stanley David Schwartz, New York
 B.S. 1964, Queens College, New York
 Willis Philip Shuler, Virginia
 B.S. in E.E., A.B. 1962, Rutgers, the State University
 Norman Burton Smith, Virginia
 B.S. 1964, University of Pennsylvania
 Philip Neurath Smith, Jr., District of Columbia
 B.S. 1964, University of Maryland
 John William Snow, District of Columbia
 A.B. 1962, University of Toledo
 Kenneth Roger Sparks, District of Columbia
 B.S. 1956, M.S. 1961, Ph.D. 1964, Syracuse University
 Adam Stein, Virginia
 A.B. 1964, New York University
 Walter Hempelmann Stewart, Illinois
 A.B. 1961, DePauw University
 Francis Herbert Sutter, Virginia
 B.S. 1964, University of Utah
 Anthony Valanzano, New Jersey
 A.B. 1964, Purdue University
 Chris J. Valianos, New York
 B.S. 1959, Cornell University
 David Owen Williams, Maryland
 A.B. 1960, Dickinson College
 A.M. 1962, American University
 Neal Foster Zimmers, Jr., Ohio
 A.B. 1964, Denison University
 David Forsyth Zoll, Virginia
 A.B. 1964, Colgate University

MASTER OF LAWS

James David English, District of Columbia
 A.B. 1963, Fordham University
 LL.B. 1966, Georgetown University
 Peter Buck Feller, District of Columbia
 A.B. 1960, University of Pennsylvania
 J.D. 1964, American University
 Joan Margaret Ferguson, District of Columbia
 LL.B. 1965, Manchester University, England
 Charles Franklin Gorder, California
 B.S. 1947, U.S. Naval Academy
 J.D. 1955, The George Washington University
 James Kent Jeanblanc, Illinois
 B.S. 1963, J.D. 1966, University of Illinois
 Issie Lee Shelton Jenkins, Maryland
 A.B. 1956, Indiana University
 LL.B. 1959, Boston University

Robert Nobuichi Katayama, Hawaii
 A.B. 1950, University of Hawaii
 LL.B. 1955, Yale University
 John Thomas Kelly, Virginia
 A.B. 1954, St. Ambrose College
 LL.B. 1959, Creighton University
 Spencer John Nunley, Indiana
 A.B. 1960, Columbia University
 J.D. 1963, Indiana University
 Norman Ralph Thorpe, Illinois
 A.B. 1956, LL.B. 1958, University of Illinois
 Ray M. Van Hook, Virginia
 A.B. 1947, Centre College of Kentucky
 LL.B. 1954, John Marshall Law School
 Alfred Hatcher Wells, Maryland
 B.S. in B.A. 1955, University of South Carolina
 LL.B. 1962, The George Washington University

MASTER OF COMPARATIVE LAW

Sin Ok Kang, Korea
LL.B. 1961, Seoul National University,
Korea

Elizabeth Flagny Norcross, Switzerland
B.S. in F.S. 1957, Georgetown
University
Licence en Droit 1965, University of
Geneva, Switzerland

DOCTOR OF JURIDICAL SCIENCE

Arturo Estrella, Puerto Rico
Dissertation: *Antitrust Law in Puerto Rico: A Study on the Interplay of Federal
and Local Legislation*
A.B. 1944, LL.B. 1952, University of Puerto Rico

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

BACHELOR OF SCIENCE (Electronics)

Lee Allen Danisch, Maryland
(With Distinction)

Sam Weakley Kelton, Jr., Virginia

BACHELOR OF SCIENCE (Mechanical Engineering)

William Alexander Boehly, Virginia
Hassan Dadjmar, Iran

Faisal Nouri Fattah, Iraq

MASTER OF ENGINEERING ADMINISTRATION

Thomas Lee Childs, Maryland
B.S. in M.E. 1962, University of
Maryland
Barbara Rea Craun, Virginia
B.S. 1959, Mary Washington College
of the University of Virginia
Michael Blaine Goetz, Michigan
B.S. 1959, St. Louis University

Dennis Ray See, Indiana
B.S. 1959, U.S. Air Force Academy
Ioannis John Sporidis, Maryland
B.S. in M.E. 1962, Howard University
Donald Wayne Stultz, Florida
B.S. 1953, University of Maryland

MASTER OF SCIENCE

Alessandro Chierici, Maryland
B.E.E. 1965, The George Washington
University
Frank Sterrett Davidson, Maryland
B.S. 1952, Washington and Lee
University
B.E.E. 1959, University of Virginia
Khalilollah Khozeimeh, Iran
B.C.E. 1965, The George Washington
University

Robert Walter Klatt, Maryland
B.S. 1966, Hofstra University
Paul Edward Patton, Maryland
B.S. in E.E. 1965, Drexel Institute of
Technology
Richard Carlton Van Wagoner, Virginia
B.E.E. 1959, University of Virginia

MASTER OF SCIENCE IN ENGINEERING

John Chamberlain Lawson, District of
Columbia
B.S. 1962, Yale University

John Leonard Wolfgang, Jr., Maryland
B.E.E. 1962, The George Washington
University

SCHOOL OF EDUCATION

BACHELOR OF ARTS IN EDUCATION

Gail Frances Abraham, District of Columbia
Elementary Education
Virginia Louise Beddard, Maryland
Secondary Education
Levia Benjamini, Israel
Special Education
Dorothy Irene Fromm, New Jersey
Elementary Education
Yvonne Cook Greenfield, Virginia
Secondary Education (With Distinction)
Harriett Herndon Lock, Missouri
Elementary Education

Elizabeth Chadwick Mark, Virginia
Secondary Education
Katherine Anne McCarthy, Virginia
Secondary Education
Rhoda Young Peiken, Florida
Elementary Education
Kenneth Peter Stryjewski, New York
Secondary Education
Barbara Jean Warner, Maryland
Elementary Education
Patricia Aloï Warnken, Hawaii
Elementary Education

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION

Thomas Eugene Reilly, New York

MASTER OF ARTS IN EDUCATION

Mary Katherine Albrittain, Maryland
Guidance
A.B. 1951, Western Maryland College
Doris C. Andress, Virginia
Guidance
A.B. 1941, Grove City College
Betty Ann Armstrong, Virginia
Elementary Education
A.B. in Ed. 1957, University of North Carolina at Greensboro
Doris Ethel Avery, District of Columbia
Guidance
A.B. 1956, Chico State College
Carol Culbert Bailey, Maryland
School Administration
A.B. in Ed. 1965, The George Washington University
John Joseph Barrett, Maryland
Physical Education
B.S. in P.E. 1960, University of Maryland
Jack Edward Baumgartner, Virginia
Physical Education
B.S. in P.E. 1954, The George Washington University
Charles Markle Beall, Maryland
School Administration
A.B. 1958, Columbia Union College
Marijane Beattie, Maryland
Guidance
B.S. 1963, Cornell University

Wilbur Eugene Berry, Jr., Maryland
Special Education
B.S. in Ed. 1965, Maryland State College, Frostburg
Fayette Bardon Binns, Virginia
School Administration
A.B. 1941, University of Pennsylvania
LeGrand Wynton Boyette, Maryland
Physical Education
B.S. in P.E. 1965, Shepherd College
David Laing Brown, Maryland
Physical Education
B.S. in P.E. 1955, West Virginia University
Tempe Curry Brownell, Maryland
Secondary Education
A.B. 1965, Duke University
Carl John Butkus, District of Columbia
Physical Education
B.S. in P.E. 1949, The George Washington University
Dorothy Louise Butler, District of Columbia
Elementary Education
A.B. in Ed. 1959, D.C. Teachers College
Robert Allan Capozzi, Connecticut
Elementary Education
B.S. 1964, Willimantic State College

- Henrietta Priscilla Margurite Carroll,
Michigan
School Administration
B.S. in Ed. 1957, University of
Nebraska
- Robert Raymond Carter, Maryland
Special Education
B.S. in Ed. 1963, Massachusetts State
College, Fitchburg
- Edith Mae Chichester, District of
Columbia
Guidance
B.S. in Ed. 1962, Delaware State
College
- Roger Aubrey Coggins, Virginia
Physical Education
B.S. in P.E. 1950, University of
Tennessee
- James R. Collier, South Carolina
Special Education
A.B. 1958, American University
- Judith Ann Cooper, Virginia
Secondary Education
B.S. in Ed. 1962, Butler University
- Daniel Earl Dancu, Virginia
School Administration
B.S. in Ed. 1964, Pennsylvania State
College, Indiana
- Peggie Ruth Davis, District of Columbia
Elementary Education
B.S. in Ed. 1962, Tuskegee Institute
- Cara Nome Dickerson, District of
Columbia
Elementary Education
B.S. in Ed. 1959, D.C. Teachers
College
- Robert Andrew Downs, Virginia
School Administration
B.S. in P.E. 1954, Appalachian State
Teachers College
- Lois Annette Dusza, New York
Student Personnel Work in Higher
Education
B.S. in Ed. 1966, State University of
New York, College at Geneseo
- Mary Lu Ent, Virginia
Guidance
B.S. 1955, University of California,
Berkeley
- Judith Anne Farnsworth, Virginia
Employee Training
B.S. in Retailing 1964, Richmond
Professional Institute
- Helen Payne Fehler, Maryland
Reading
B.S. 1937, Roanoke College
- Vildred Lipford Fitzgerald, District of
Columbia
School Administration
B.S. in Ed. 1955, Winston-Salem
State College
- Catherine Inge Flowers, District of
Columbia
Special Education
B.S. 1951, Saint Paul's College, Virginia
- Elfrida Ruth Foy, District of Columbia
School Administration
B.S. in Ed. 1956, D.C. Teachers
College
- Eleanor Lee Fraley, Maryland
Elementary Education
B.S. in Ed. 1960, Maryland State
College, Towson
- Betty Ann Freeman, District of Columbia
Guidance
B.S. in Ed. 1955, D.C. Teachers
College
- Lawrence Bernard Freeman, Maryland
Guidance
A.B. 1950, Howard University
- Elaine Seagrave Haley, District of
Columbia
Elementary Education
A.B. 1961, Stanford University
- Donald Frank Hall, Maryland
Special Education
A.B. 1953, University of New Mexico
- Paul Thomas Harakal, Maryland
Guidance
B.S. in Ed. 1964, Temple University
- Linda Janice Hargrave, Texas
Student Personnel Work in Higher
Education
A.B. 1958, University of Texas
- Thomas Harper, District of Columbia
Special Education
A.B. 1959, Texas Southern University
- Mary Ann Hayes, Maryland
Special Education
A.B. in Ed. 1963, Dunbarton College
of Holy Cross
- Glenn E. Hilburn, Jr., Virginia
Special Education
A.B. in Ed. 1964, San Jose State
College
- Lillian Breeden Hill, District of
Columbia
School Administration
A.B. in Ed. 1956, D.C. Teachers
College

- Joan Elizabeth Hoar, Massachusetts
Student Personnel Work in Higher Education
A.B. 1966, Emmanuel College, Massachusetts
- June Carolyn Holland, District of Columbia
School Administration
B.S. 1958, Morgan State College
- Ernest Alfred Holmes, District of Columbia
School Administration
B.S. in Ed. 1964, D.C. Teachers College
- Suzanne Eilene Hood, District of Columbia
Reading
A.B. 1958, University of Maryland
- Richard Joseph Hornfeck, Maryland
Physical Education
B.S. in P.E. 1963, The George Washington University
- Betty Rigsby Howard, District of Columbia
Special Education
A.B. in Ed. 1966, The George Washington University
- Carol Pauley Janney, Virginia
Guidance
B.S. 1956, West Virginia Institute of Technology
- Betty L. Jenifer, District of Columbia
School Administration
B.S. in Ed. 1956, D.C. Teachers College
- Lewis William Jenkins, Maryland
Physical Education
B.S. in P.E. 1959, University of Maryland
- James Christian Jensen, Virginia
Physical Education
B.S. in P.E. 1966, The George Washington University
- Joan Kaiser, Virginia
Reading
A.B. in Ed. 1962, The George Washington University
- Carol Ivy Karasik, District of Columbia
Secondary Education
A.B. 1964, The George Washington University
- Bernard William Kelly, District of Columbia
Guidance
A.B. 1954, State College of Iowa
- Kendall Eugene Kidwell, Maryland
Guidance
B.S. 1961, Maryland State College, Frostburg
- Sharon Lynn King, Virginia
School Administration
B.S. in Ed. 1964, Pennsylvania State College, California
- Joan Bregman Kornreich, Florida
Elementary Education
Ed.B. 1965, University of Miami
- Patricia Olwen Kurdle, Maryland
Special Education
A.B. 1960, Western Maryland College
- Patricia Kathryn Lesnick, Maryland
Special Education
B.S. 1953, Carnegie Institute of Technology
- Nancy Eisold Lindsay, Virginia
Reading
A.B. 1963, William Smith College
- Irene Moss Lober, Virginia
Elementary Education
B.S. in Ed. 1948, City College, New York
- Earl Joseph Longauer, Jr., Virginia
Physical Education
A.B. in Ed. 1966, Syracuse University
- Walter Edward Lowe, Virginia
School Administration
B.S. 1939, Virginia State College
- Betty Ellmore Lowenbach, Virginia
Reading
B.S. in Ed. 1959, Madison College
- Joseph Lupo, Maryland
School Administration
Mus.B. 1963, Peabody Institute of the City of Baltimore
- David Clifton Lynn, Virginia
School Administration
B.S. in Ed. 1956, East Tennessee State University
- Betty Grant Makell, Maryland
Reading
B.S. in Ed. 1960, D.C. Teachers College
- Arlene Sherman Matusow, New York
Secondary Education
A.B. 1964, Bryn Mawr College
- Mabel Vierling McEwan, Maryland
Physical Education
A.B. 1941, The George Washington University
- Charles Daniel McMahon, Virginia
Secondary Education
B.S. in B.A. 1964, Georgetown University

- Brenia Lynne Mednick, New York
Secondary Education
B.S. in Ed. 1966, University of
Bridgeport
- Marvin Aaron Mermelstein, Maryland
School Administration
Ed.B. 1960, University of Miami
- Kathleen Michael, Maryland
School Administration
B.S. in Elem.Ed. 1960, University of
Pittsburgh
- Chauncey Isaac Miller, District of
Columbia
School Administration
B.S. in Ed. 1959, Maryland State
College, Bowie
- Edward Llewellyn Mitchell, Maryland
School Administration
A.B. 1952, Howard University
- Lealie Jeann Moore, New Mexico
Student Personnel Work in Higher
Education
A.B. 1966, Blackburn College
- Rita Wanda Morgan, Virginia
Secondary Education
A.B. 1952, Mary Washington College
of the University of Virginia
- Loyce Freida Myers, Maryland
Guidance
B.S. in Ed. 1960, Southern
Connecticut State College
- Arthur Nimetz, Maryland
Guidance
B.S. 1963, University of Maryland
- Vincent Bernard Otten, Virginia
School Administration
B.S. 1945, U.S. Naval Academy
- Blair Patterson Overton III, Maryland
Physical Education
B.S. in P.E. 1962, Shepherd College
- Urban Tilden Peters, District of
Columbia
Guidance
B.S. in P.E. 1957, University of
Maryland
- John Price, Virginia
School Administration
A.B. in Ed. 1967, The George
Washington University
- Alyce Della Reaves, Maryland
Guidance
B.S. in Ed. 1953, D.C. Teachers
College
- Clara Armesia Reid, District of
Columbia
Reading
B.S. in Ed. 1957, Saint Paul's College,
Virginia
- Joseph Alva Rice, Jr., Maryland
School Administration
B.S. in Ed. 1960, University of
Maryland
- Madlyn White Ridley, District of
Columbia
Elementary Education
A.B. in Ed. 1960, West Virginia
State College
- Jeffrey Lee Ring, Virginia
Secondary Education
A.B. in Ed. 1965, The George
Washington University
- Jennifer Dodds Rosser, District of
Columbia
Secondary Education
A.B. 1965, College of Wooster
- Ethel Shainis, District of Columbia
Elementary Education
A.B. in Ed. 1966, The George
Washington University
- Lowell Ray Shaw, West Virginia
Student Personnel Work in Higher
Education
B.S. in Ed. 1964, West Virginia
University
- Elizabeth Lamb Shepherd, Florida
School Administration
B.S. 1951, Tennessee Agricultural and
Industrial University
- Marlene Alma Slavin, Illinois
Secondary Education
A.B. 1958, St. Mary's College, Indiana
- Deborah Anne Stanley, Maryland
Elementary Education
A.B. 1960, University of Maryland
- Janice L. Steiner, Florida
Special Education
B.S. 1965, Florida Atlantic University
- Clarence Willie Taylor, District of
Columbia
School Administration
B.S. in Ed. 1956, D.C. Teachers
College
- Mercita Ann Thailing, District of
Columbia
Reading
B.S. in Ed. 1958, St. John College of
Cleveland
- Margie Louise Thomas, Louisiana
Elementary Education
A.B. in Ed. 1954, Southern University
and Agriculture and Mechanical
College
- Clarence Lee Thompson, District of
Columbia
Elementary Education
A.B. 1957, Howard College

Fefronia Constantine Tompros, District of Columbia
Reading
A.B. 1960, American University
Vivian Elaine Turner, District of Columbia
Reading
B.S. in Ed. 1950, Virginia State College
Lawrence Gregori Usiskin, District of Columbia
Physical Education
B.S. in P.E. 1961, The George Washington University
Templeton S. Walker, Virginia
Physical Education
A.B. in P.E. 1938, San Diego State College
Harry Lee Wickline, Virginia
Physical Education
B.S. in P.E. 1961, The George Washington University

Doreatha Payne Wills, District of Columbia
Guidance
B.S. in P.E. 1960, Virginia State College
Janet May Worthington, Maryland
Guidance
B.S. in Ed. 1958, Maryland State College, Towson
Myra H. Yeager, Virginia
Guidance
B.S. 1941, Northeast Missouri State Teachers College
Richard Niles Yobst, Maryland
Physical Education
B.S. in P.E. 1963, Western Maryland College
John Charles Youngblood, Virginia
Physical Education
B.S. in Health Ed. 1952, Pennsylvania State College, East Stroudsburg

MASTER OF ARTS IN TEACHING

Nellie Cameron Jeter, District of Columbia
Elementary Education
B.S. 1962, University of South Carolina

Angela Ann Obermeier, District of Columbia
Elementary Education
A.B. 1959, The George Washington University

ADVANCED PROFESSIONAL CERTIFICATE

Gloria Elizabeth Blaylock, District of Columbia
B.S. in Ed. 1956, D.C. Teachers College
A.M. in Ed. 1962, The George Washington University
Augustus Lynch Lacey, Virginia
B.S. 1934, New York University
A.M. in Ed. 1962, The George Washington University

Sally Ann Mack, District of Columbia
B.S. in Ed. 1957, Maryland State College, Towson
A.M. in Ed. 1962, The George Washington University

EDUCATION SPECIALIST

Warner James Connick, New York
Guidance
A.B. 1960, University of Notre Dame
A.M. 1964, A.M. in Ed. 1965, The George Washington University
William Clyde Hill, District of Columbia
Guidance
B.S. in Ed. 1948, A.M. in Ed. 1955, Hampton Institute

Rita Joy Ives, Maryland
Special Education
B.S. 1953, University of Pittsburgh
A.M. in Ed. 1957, The George Washington University

DOCTOR OF EDUCATION

- Leonard Ackerman, Virginia
Employee Training
Dissertation: *A Study of Selected Employee Development Specialists in the Federal Government: Their Background, Role, and Organizational Location*
A.B. 1956, Rutgers, the State University
- Beverly Anderson Crump, Maryland
Teacher Education
Dissertation: *An Historical Analysis of State Art Guides and Courses of Study for Art in the Elementary Schools of the United States, 1893-1965*
B.S. in Art Ed. 1948, St. Cloud State College
Ed.M. 1950, University of Minnesota
- Ronald Arthur Dearden, Virginia
Secondary Administration
Dissertation: *A Descriptive Analysis of the Perceptions of Selected School Personnel Enrolled in the 1965 Summer Desegregation Institutes*
B.S. in P.E. 1959, A.M. in Ed. 1960, The George Washington University
- Patricia Mary Lawlor, Virginia
Guidance and Counseling
Dissertation: *School Counseling: The Person and the Profession*
B.S. in P.E. 1949, A.M. in Per. Adm. 1959, The George Washington University
- Helena Keehne Lietwiler, Maryland
Teacher Education
Dissertation: *A Descriptive Study of Reading Programs and Practices in Public High Schools in the United States*
A.B. 1928, Western College for Women
A.M. in Ed. 1956, A.P.C. 1964, The George Washington University
- Laura Joan Swanson, District of Columbia
Guidance and Counseling
Dissertation: *A Study of Student Personnel Programs in the Two-year Colleges of the New England and the Middle Atlantic States*
A.B. 1949, A.M. in Ed. 1951, A.P.C. 1963, The George Washington University

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

BACHELOR OF BUSINESS ADMINISTRATION

- | | |
|---|---|
| Charles Allen Ashley, New York
International Business | Joseph Anthony Hoofnagle, Maryland
Accounting |
| Michael Emmett Blair, Virginia
Accounting | George Lester Kufner, Pennsylvania
Business Administration |
| Charles Joseph Cliff, Jr., Virginia
Accounting | David Eugene Menges, Virginia
Accounting |
| A.B. 1964, Catholic University of
America | Thomas Wesley Metz, Jr., Louisiana
Accounting |
| Leonard Robert Cohen, Delaware
Business Administration | Stanley Kelley Moseley, Virginia
Business Administration |
| Julio Ignacio Duarte, District of
Columbia | Aaron Richard Silberman, Pennsylvania
Accounting |
| Accounting | Robert Lee Simpson, Jr., Virginia
Business Administration |
| Gary Milton Eiserman, District of
Columbia | John Frederick Weatherby, New York
Business Administration |
| Accounting | |

MASTER OF ARTS IN GOVERNMENT

Albert Yeates Brown, Jr., Georgia
Public Administration
A.B. 1960, Millsaps College
Robert Leon Cole, Virginia
Public Administration
A.B. 1966, University of Southwestern
Louisiana

Austin Patrick McHale, Virginia
Public Administration
B.S. 1954, Georgetown University

MASTER OF BUSINESS ADMINISTRATION

Robert Dale Baird, Utah
Business Administration
B.S. 1952, University of Utah
Ronald Bartell, Maryland
Business Administration
B.S. 1958, University of Maryland
Robert Roy Butcher, Maryland
Business Administration
B.E.E. 1961, Marquette University
M.S. 1962, University of Illinois
Eugene Roy Christie, Ohio
International Business
B.S. 1948, Ohio University
M.S. 1955, Massachusetts Institute of
Technology
Eugene Arthur Clervi, Missouri
Business Administration
B.S. 1953, St. Louis University
Robert Stanley Connors, Maryland
Business Administration
B.S. 1951, New York University
Bobby Dean Cornell, Nebraska
Business Administration
B.S. 1952, Kansas State University of
Agriculture and Applied Science
Alan Joseph Darke, Virginia
International Business
A.B. 1966, The George Washington
University
Yale Rezin Davis, Jr., Kansas
Business Administration
B.Mus.Ed. 1958, Wichita State
University
Robert Dwain Day, Virginia
Business Administration
A.B. 1946, Dartmouth College
Richard Walter Elder, Kentucky
Business Administration
B.S. 1961, University of Virginia
Carson Lee Fifer, Jr., Virginia
Business Administration
A.B. 1965, Brown University
Ronald Eugene Hagler, Illinois
Business Administration
B.S. 1958, Southern Illinois University

Thomas Morlock James, Virginia
Business Administration
B.S. 1955, State University of New
York at Buffalo
Glen Dale Johnson, Washington
Business Administration
A.B. in B.A. 1958, University of
Washington
Donald Robert Kaufmann, Virginia
Business Administration
B.S. 1954, Fordham University
James Robert Kirby, Maryland
Business Administration
B.S. 1940, Western Kentucky State
College
B.S. in Aero.Engr. 1942, Massachusetts
Institute of Technology
Harold Lee Lehman, Pennsylvania
Business Administration
B.B.A. 1958, University of Pittsburgh
William Harris Marley, Ohio
Business Administration
B.S. in Mil.Sci. 1954, University of
Maryland
Raymond Francis Masino, Maryland
Business Administration
B.S. 1951, New York University
David Michael Maytnier, District of
Columbia
Business Administration
A.B. 1965, College of William and
Mary
John James McCracken, Jr., Virginia
Business Administration
B.S. 1964, LaSalle College
Gerald Eugene McGee, Ohio
Business Administration
B.Gen.Ed. 1957, Municipal University
of Omaha
Jerry Lee McQuitty, Missouri
Business Administration
B.S. 1954, University of Missouri
Pramod Ratilal Mehta, India
International Business
B.S. 1958, University of Bombay,
India

Arthur Robert Miele, New Jersey
International Business
A.B. 1963, St. John's University,
New York
Alfredo Eloy Mondragon, Arizona
Health Care Administration
B.S. 1964, University of New Mexico
Richard Stephen Nemeth, Florida
Business Administration
A.B. 1953, Union College and
University
William Averill Palmer, Connecticut
Business Administration
A.B. 1965, Marietta College
Stewart Allen Schwartz, New York
Health Care Administration
B.S. 1964, City College, New York
Peter Anthony Shanley, District of
Columbia
Business Administration
B.S. 1960, U.S. Naval Academy
Henry Shimabukuro, Hawaii
Business Administration
B.S. 1954, The George Washington
University

Andrew Paul Soves, Michigan
Business Administration
A.B. 1962, Wayne State University
Joseph John Stahl, Jr., Virginia
International Business
A.B. 1965, Stanford University
Robert Martin Tilker, Virginia
Business Administration
B.B.A. 1966, The George Washington
University
Gladys Vedros, Kansas
Health Care Administration
A.B. 1955, University of Missouri
Carl Eric Wagner, Maryland
Business Administration
A.B. 1965, Western Maryland College
Julius Dalton Washington, Nebraska
Business Administration
B.S. 1957, Tuskegee Institute
Church Watkins, Jr., Tennessee
Business Administration
B.S. 1958, Tennessee Agricultural and
Industrial University

MASTER OF PUBLIC ADMINISTRATION

Timothy John Broedling, Ohio
A.B. 1965, Ohio University

James Russell Duggan, California
B.S. 1963, Brigham Young University

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

BACHELOR OF ARTS

William Robert Arnold, Virginia
International Affairs
Elizabeth Carolyn Bours, Maryland
International Affairs
Robert Lewis Emory, New York
International Affairs
Sherry Lynn Hastings
International Affairs
Ardavazt Honanyan, New Jersey
International Affairs
Norman Lewis Kaufman, New York
International Affairs

Richard Stirling Kelso, Virginia
International Affairs
Martine Berthe Aimee Mangum, Texas
International Affairs
Thomas Othon Mudd III, Texas
International Affairs
Norman Carl Neverson, District of
Columbia
International Affairs
Susan Margaret Proctor, California
International Affairs
Mary Harriett Topping, New York
International Affairs

MASTER OF ARTS

Kajaona Andriamananjara, Malagasy
Republic
International Affairs
A.B. 1966, Princeton University

Andrea Arntsen, Virginia
International Affairs
A.B. 1966, The George Washington
University

James Salter Burris, Minnesota
International Affairs
A.B. 1961, Yale University
LL.B. 1964, University of Minnesota
Mollie Ann Church, Virginia
Economic Policy
A.B. in Govt. 1962, The George
Washington University
Calvin Warren Ellis, California
International Affairs
A.B. 1950, A.B. 1967, The George
Washington University
Henry Akers Engelbrecht, Jr., Virginia
Economic Policy
A.B. in Govt. 1961, The George
Washington University
John Freivalds, District of Columbia
International Affairs
B.S. in F.S. 1966, Georgetown
University
Gene Roger Harris, Oregon
International Affairs
A.B. in Govt. 1965, The George
Washington University
Carol Starzan Kluttz, Virginia
International Affairs
A.B. 1965, The George Washington
University
Louis Joseph Kochanek, New Hampshire
International Affairs
B.S. 1952, University of New
Hampshire

Donald Angus MacDonald, Michigan
International Affairs
A.B. 1959, Wayne State University
John Henry Marlin, District of
Columbia
International Affairs
A.B. 1961, Oklahoma City University
B.D. 1966, Episcopal Theological
Seminary, Virginia
John Francis McCarthy III, Virginia
International Affairs
A.B. in Govt. 1966, The George
Washington University
Douglas Joseph Parry, Utah
International Affairs
A.B. 1966, The George Washington
University
Eric Ethan Rickner, Texas
International Affairs
B.S. in Ed. 1965, Abilene Christian
College
Dorothy Louise Schindler, Pennsylvania
International Affairs
A.B. 1964, Bucknell University
Kenneth Edward Stewart, District of
Columbia
International Affairs
A.B. 1961, University of Utah
LL.B. 1964, University of Michigan

COLLEGE OF GENERAL STUDIES

ASSOCIATE IN ARTS

Earl Jackson Frambes, Virginia
Accounting

Gregory G. Tessier, Virginia
Accounting

BACHELOR OF ARTS

Paul Boland, California
Social Sciences
William Grant Boyer, Tennessee
Social Sciences
Robert Dayton Buckley, Virginia
Social Sciences
Cyrus Gerald Buttram, Virginia
Social Sciences
Ernest Marion Cadenas, Florida
Social Sciences
Albert Sidney Davis, Ohio
Social Sciences
Mildred Welsh Embree, Maryland
Natural Sciences
Cyrus Falconer Fitton, Ohio
Social Sciences

Jeanne Anne Goldfarb, New York
Social Sciences
Walter Reeves Harper, California
Psychology
Gordon McAllister Hart, Alabama
Social Sciences
Robert Gene Hertel, Georgia
Social Sciences
Victor Edward Hobbs, Illinois
Social Sciences
James Alex Homyak, California
Social Sciences
Thomas Francis Kady, Virginia
Social Sciences
Bernard Wilford LaClair, New York
Social Sciences

Patrick John Lindsay, Virginia
Social Sciences (With Distinction)
Samuel Carter Lowe, Maryland
Social Sciences
Earle Thomas McFarland, California
Social Sciences

Patricia Noble, District of Columbia
Social Sciences
Hjalmer Eugene Swanson, North Dakota
Social Sciences

BACHELOR OF BUSINESS ADMINISTRATION

Robert Nevin Dallam, California
(With Distinction)
Robert Edwards Geiger, Arkansas

Francis Dennis McCusker, Virginia
William Hamilton Rhodes, Virginia

BACHELOR OF SCIENCE IN GENERAL STUDIES

Charles Baumeister, Virginia
Jack Willard Bennett, Illinois
Kent Jean Carroll, Michigan
Joseph Lustrat Coleman, Virginia
Ernest Clyde Connelley, Jr., Arkansas

Donald Keith Issitt, Virginia
Charles William Lawson, Maryland
Hoyt Porter Maulden, Florida
Samuel Thomas Orme, Utah
Jack Kevin Selden, Jr., Texas

MASTER OF ARTS

Charles Forrest Briggs, Michigan
Personnel Administration
A.B. 1956, Western Michigan
University

Nicholas Woody MaJure, Florida
Personnel Administration
Ed.B. 1952, University of Miami

Dennis Wayne Gibson, Illinois
Personnel Administration
B.S. 1954, University of Pennsylvania

MASTER OF ARTS IN INTERNATIONAL AFFAIRS

Robert Walter Green, Pennsylvania
B.S. 1962, University of Maryland

MASTER OF BUSINESS ADMINISTRATION

Lewis Frederick Bogan, California
B.S. 1943, U.S. Naval Academy

James Freeman Harris, Jr., Nebraska
B.S. 1940, University of Nebraska

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

William Gene Anderson, Pennsylvania
A.B. 1953, Pennsylvania State
University

Duane Marshall Benton, Ohio
A.B. 1955, Ashland College
B.S. 1958, University of Utah

Emmett O. Anglin, Jr., Texas
B.S. 1961, Oklahoma State University
of Agriculture and Applied Science

M.S. 1964, Ohio State University
Carl Frederick Bergstrom, Jr., New York
B.S. in Mil.Sci. 1962, Municipal
University of Omaha

Peter James Attarian, Alabama
A.B. 1961, Long Island University
Chester August Barchiesi, Pennsylvania
B.S. 1953, U.S. Naval Academy

Henry Peter Bisschop, Virginia
B.S. in E.E. 1943, Virginia Polytechnic
Institute

George Kasper Barsom, Jr., Oklahoma
B.Gen.Ed. 1966, Municipal University
of Omaha

Jack Warren Boller, Kansas
B.S. 1945, University of Southern
California

Lewis Sherod Beall, North Dakota
A.B. 1941, University of North Dakota

Clair La Vern Book, Illinois
B.S. 1946, U.S. Military Academy

- Joseph Chester Bors, California
B.S. 1956, Pennsylvania State University
- Richard Thomas Boverie, Missouri
B.S. 1950, U.S. Naval Academy
M.S. in Engr. (Aero. and Astro.),
M.S. in Engr. (Instrumentation) 1961,
University of Michigan
- Max Smith Bowlden, Utah
B.S.L. 1957, LL.B. 1959, University of Utah
- Paul Clinton Boyd, Ohio
B.S. 1945, U.S. Naval Academy
- Joseph Otis Bunting, Jr., Virginia
B.S. 1954, Virginia Polytechnic Institute
- David Joseph Burke, Connecticut
B.S. 1955, College of the Holy Cross
- James Preston Cann, California
B.S. 1941, University of California, Berkeley
- Lucien Capone, Jr., Rhode Island
B.S. 1949, U.S. Naval Academy
- Raymond Elliott Carpenter, Jr., New Mexico
B.Gen.Ed. 1966, Municipal University of Omaha
- Mayo Carrington, Jr., Florida
B.A.E. 1953, Georgia Institute of Technology
M.S. in M.E. 1964, University of New Hampshire
- Philip William Cary, Indiana
B.S. 1963, Air Force Institute of Technology
- Samuel Grady Cockerham, Virginia
B.S. 1948, U.S. Military Academy
M.S. 1956, Purdue University
- Victor Peter Cole, California
A.B. 1954, University of Maryland
- Michael Francis Connolly, Pennsylvania
B.Gen.Ed. 1964, Municipal University of Omaha
- Leslie Craig Conwell, Florida
A.B. 1955, Syracuse University
- John Joseph Coonan, Rhode Island
B.S. 1941, Rhode Island College
- Larry Thomas Cooper, Oklahoma
B.S. 1953, University of Tulsa
- John Tate Cornelius, Maryland
B.S. 1954, University of Maryland
- Lawrence Raffety Cotter, California
A.B. 1956, University of California, Berkeley
- Glenn Thomas Cox, California
B.S. 1953, University of California, Los Angeles
- Oscar Norman Dale, Virginia
B.S. 1944, U.S. Naval Academy
- Edward Francis Danowitz, New Jersey
B.S. 1943, College of the Holy Cross
A.M. 1955, Ph.D. 1956, University of Pennsylvania
- Kemp Hoy Denning, Jr., Tennessee
B.S. in Mil.Sci. 1956, University of Maryland
- Walter Nicholas Dietzen, Virginia
B.S. 1944, U.S. Naval Academy
- Charles Joseph Doherty, Massachusetts
B.S. 1965, University of Oklahoma
- John Joseph Doody, Virginia
B.S. 1948, U.S. Military Academy
- Theodore Dowd, New York
B.Gen.Ed. 1966, Municipal University of Omaha
- Robert Gorman Duke, Alabama
B.S. 1954, Auburn University
- William Harold Ellis, Ohio
A.B. 1962, The George Washington University
- Robert Eugene Eubanks, Tennessee
A.B. 1954, University of Missouri
- Frank Thomas Faha, Oregon
B.S. 1955, Oregon State University
- William Fergus Feely, New Jersey
B.S. 1947, University of Pennsylvania
- George Wright Finison, Georgia
B.E.E. 1954, Georgia Institute of Technology
- George Lewis Florman, Illinois
B.S. in M.E. 1955, University of Illinois
M.S. in Aero.Engr. 1962, Air Force Institute of Technology
- Richard Arthur Forster, Illinois
B.S. 1963, University of Oklahoma
- Robert Edmund Fritsch, Wisconsin
B.S. in Ed. 1957, University of Wisconsin
- Richard Steven Gardiner, Florida
B.S. 1946, U.S. Naval Academy
M.S. 1956, U.S. Naval Postgraduate School
- Gilbert Dwight Gardner, New York
B.S. in Gen.Sci. 1953, Massachusetts Institute of Technology
B.S. in Aero.Engr. 1961, Air Force Institute of Technology
- John Anthony Garstka, New York
B.S. 1959, Syracuse University
- John William Gephart, Florida
B.S. 1967, University of Maryland

- David Bernard Germann, California
B.S. 1956, University of Utah
- William Daniel Gilbert, Louisiana
A.B. 1963, The George Washington University
- Donald Albert Gilles, Rhode Island
B.S. 1952, M.S. 1953, U.S. Naval Postgraduate School
- Harry Alonzo Goodall, West Virginia
B.Gen.Ed. 1965, Municipal University of Omaha
- William Price Gordon, Jr., Alabama
A.B. 1936, Kentucky Wesleyan College
- Richard Gene Grammer, Texas
B.S. 1951, East Texas Baptist College
- Grover King Gregory, Jr., Ohio
B.S. in A.E. 1960, University of Oklahoma
- Francis Lee Griffin, Pennsylvania
B.S. 1954, Grove City College
- David Gueldner, Texas
B.Gen.Ed. 1962, Municipal University of Omaha
- Vernon DeLon Hagen, Tennessee
B.Gen.Ed. 1966, Municipal University of Omaha
- Harry Henry Hagenbrock, Minnesota
A.B. 1955, University of Minnesota
- Bud Thomas Hall, California
B.S. 1955, U.S. Military Academy
- James Kennedy Hall, Indiana
B.Gen.Ed. 1965, Municipal University of Omaha
- Haywood Shepherd Hansell, Florida
B.S. 1955, U.S. Military Academy
- Everett Virgil Harrison, Oklahoma
B.S. 1953, North Dakota State University
- B.S. in M.E. 1964, Texas A&M University
- Anthony Anastes Hastoglis, New Jersey
B.S. 1955, U.S. Naval Academy
- Donald Edwin Haugen, Wisconsin
B.B.A. 1964, University of Wisconsin
- Clifford Otto Carl Henning, Jr., Oregon
B.S. 1953, Oregon State University
- Ronald Paul Hight, California
B.Gen.Ed. 1964, Municipal University of Omaha
- Lucius Gordon Hill, Jr., Virginia
B.S. 1961, University of Wisconsin
- Jesse Shy Hocker, New Hampshire
B.S. in Comm. 1954, University of Kentucky
- Robert Dean Hoffman, Louisiana
B.S. 1953, Tulane University of Louisiana
- Tai Sung Hong, Hawaii
A.B. 1961, University of Hawaii
- Lynn Wood Hoskins, Jr., Texas
B.S. 1946, U.S. Military Academy
- Richard Blake Houghton, New Mexico
A.B. 1954, Stanford University
- Stanley Powell Houghton, Illinois
B.S. 1954, U.S. Naval Academy
- Merl Galbreath Hutto, Indiana
B.S. 1946, U.S. Military Academy
- James Richard Jenkins, Texas
B.S. 1955, Southern Illinois University
- Wendell Warren Jernigan, California
B.Gen.Ed. 1966, Municipal University of Omaha
- Daniel Franklin Johnson, Florida
LL.B. 1950, University of Miami
- Harold Frederick Johnson, Iowa
B.S. 1953, Iowa State University of Science and Technology
- James Robert Jones, New Jersey
B.S. 1946, North Texas State University
- John Griffin Jones, Louisiana
B.S. 1950, U.S. Military Academy
M.S. in M.E. 1958, University of Southern California
- Ralph Martin Jordan, Jr., North Carolina
B.S. 1955, University of North Carolina
- Stanley James Kayser, California
A.B. 1957, Chico State College
- Walter David Keeler, Texas
B.S. 1955, Colorado State University
- Ernest Junior Kellerstrass, Illinois
B.S. in C.E. 1954, Bradley University
M.S. 1962, St. Louis University
- David Scott Kelsey, Kansas
A.B. 1956, Princeton University
- William Howard Lake, Illinois
B.S. 1949, U.S. Military Academy
M.S. 1957, Ph.D. 1960, Catholic University of America
- John Joseph Lally, California
B.S. 1956, U.S. Naval Academy
- Robert Jones Lamb, North Carolina
B.S. 1946, U.S. Military Academy
A.M. 1954, Columbia University
- James Russell Landreth, Jr., Indiana
B.S. 1953, U.S. Military Academy
- Phillip Nelson Larsen, Texas
B.S. 1950, Colorado State University
M.S. 1953, Ph.D. 1956, University of Illinois

- Robert Earl Lawton, New York
A.B. 1954, Clark University
Ed.M. 1962, University of New Hampshire
- Frank Charles Lenahan, Arizona
B.S. in B.A. 1953, Oregon State University
B.S. 1963, University of Arizona
- Paul Bewighouse Loux, Jr., Colorado
B.S. in E.E. 1954, Drexel Institute of Technology
- Norman Paul Luna, Texas
B.S. 1954, East Texas State University
- Robert Hugh Mackintosh, Florida
B.S. in Ind.Mgt. 1961, Massachusetts Institute of Technology
- Leo Marquez, New Mexico
B.S. 1954, New Mexico State University
- Robert Charles May, Jr., North Carolina
B.S. 1954, U.S. Naval Academy
- Thomas Robert Mayhugh, Texas
B.S. 1952, University of Kentucky
M.P.H. 1962, Yale University
- Lawrence Joseph McCarthy, Ohio
A.B. 1957, A.M. 1961, Florida State University
- Charles Whitney McGuire, Virginia
B.S. 1949, University of California, Berkeley
- Donald Lyle McHugo, Washington
B.Gen.Ed. 1964, Municipal University of Omaha
- Robert Rankin McKay, Jr., Illinois
A.B. 1955, Grinnell College
- Howard John McLaughlin, Indiana
B.S. 1956, University of Detroit
- William Daniel McWilliams III, Colorado
B.S. 1955, U.S. Military Academy
- Norman Lee Meador, Sr., Virginia
A.B. 1950, College of William and Mary
- Edward Dickinson Meares, Virginia
B.S. 1949, University of Maryland
A.M. 1956, Michigan State University
- Henry Watts Meetze, Kansas
B.S. 1955, U.S. Military Academy
- John Max Minor, Texas
B.S. 1946, U.S. Military Academy
- James Milton Mischo, California
A.B. 1956, Sacramento State College
- Edison Edward Mouton, Nevada
B.S. 1945, U.S. Naval Academy
- Paul Joseph Bruno Murphy, Jr., Virginia
A.B. 1949, Washington and Lee University
- Charles Edwin Murray, Kentucky
B.B.A. 1964, University of Oklahoma
- Michael Spencer Muskat, Pennsylvania
A.B. 1955, Amherst College
- James Thomas Myers, Kentucky
B.S. 1956, University of Kentucky
- Edward Raymond Nacey, California
A.B. 1963, Sacramento State College
- Richard Logan Nidever, California
A.B. 1954, University of California, Los Angeles
- Earl Helmuth Ninow, Wisconsin
M.D. 1951, Marquette University
- Barry Francis O'Brien, North Dakota
B.S. 1963, University of Arizona
- William Emery Overacker, Tennessee
A.B. 1954, Emory University
- Robert Roy Parker, Arizona
LL.B. 1954, Catholic University of America
- Louran Dale Parriott, Jr., Minnesota
A.B. 1960, Mankato State College
- Donald Orian Pflugrath, Ohio
B.S. 1954, U.S. Naval Academy
- Jack Augustus Powers, California
A.B. 1957, University of the Philippines
- James William Prichard, Virginia
A.B. 1944, Yale University
- Charles Lee Prince, Florida
B.S. in B.A. 1949, University of Florida
- Thomas Vance Quayle, Ohio
B.Gen.Ed. 1966, Municipal University of Omaha
- Albert Redman, Jr., Ohio
B.S. in Mil.Std. 1963, University of Maryland
- John Paul Richmond, Jr., Florida
A.B. 1952, University of Connecticut
- Philip James Riede, New Jersey
B.S. 1955, University of Maryland
- Albert Gerald Rogers, New York
A.B. 1954, Oberlin College
- Gerald John Samos, Illinois
B.S. 1955, U.S. Military Academy
M.S. in E.E. 1961, University of Illinois
- Howard Leroy Sargent, Jr., California
B.S. 1947, U.S. Military Academy
M.S. 1954, California Institute of Technology
- Richard Austin Savage, Virginia
B.S. 1946, U.S. Naval Academy
- Kurt George Schramm, Florida
B.S. in Mil.Std. 1964, University of Maryland

- Richard Yates Scott, California
B.S. 1945, U.S. Naval Academy
- Louis Edward Seminare, Jr., Rhode Island
A.B. 1952, Providence College
- Robert Dean Shular, Montana
B.S. 1954, University of Montana
- John Harold Slaney, Illinois
B.S. 1957, U.S. Military Academy
- Gary Thomas Smith, Alabama
B.S. 1954, U.S. Naval Academy
M.S. 1960, North Carolina State University at Raleigh
- David Solomon, Virginia
B.S. 1961, Brooklyn College
- Howard Norman Solomon, Virginia
A.B. 1953, American University
- Walter Spangenberg, Jr., California
B.S. 1947, U.S. Naval Academy
B.S. in Aero.Engr. 1955, U.S. Naval Postgraduate School
M.S. in Engr. 1956, Princeton University
- William Leslie Sparks, Wyoming
A.B. 1957, University of Denver
- Roger Elmore Spreen, Ohio
B.S. 1942, U.S. Naval Academy
M.S. 1951, Carnegie Institute of Technology
- Leonard Anthony Staszak, California
B.S. 1947, U.S. Military Academy
M.S. 1949, Ohio State University
- John Thomas Stihl, California
B.Gen.Ed. 1964, Municipal University of Omaha
- Charles Edward Sullivan, Jr., Kansas
A.B. 1936, St. Benedict's College
- William Randolph Sullivan, Mississippi
B.S. 1944, U.S. Military Academy
- Raymond Theodore Tate, Maryland
A.B. 1956, University of Maryland
- Harold Alva Terrell, Jr., Georgia
B.S. 1946, U.S. Military Academy
M.S. in E.E. 1955, Georgia Institute of Technology
- Russell Eugene Thoburn, Ohio
B.S. in Ed. 1953, West Virginia University
- Harry Vincent Tighe, Maryland
B.S. 1950, Johns Hopkins University
LL.B. 1962, University of Maryland
- Henry Guice Tinsley, Jr., Indiana
B.S. in M.E. 1953, Purdue University
- George Franklin Tolson, New York
A.B. 1964, The George Washington University
- Lawrence Dean Tyner, Oregon
B.B.A. 1954, University of Oregon
- Eugene Michael Vallerie III, Connecticut
B.S. 1957, U.S. Naval Academy
- Daniel Vance, Jr., Michigan
B.S. in B.A. 1956, Babson Institute of Business Administration
- William Babson Van Dusen, Maryland
B.S. 1942, U.S. Naval Academy
- Harper Elliott Van Ness, Jr., Texas
B.S. 1942, U.S. Naval Academy
B.S. 1949, U.S. Naval Postgraduate School
M.M.E. 1950, Rensselaer Polytechnic Institute
- David Read Vehling, New Jersey
B.S. 1953, Purdue University
- Douglas Barnes Vickers, Delaware
B.S. 1953, Oregon State University
M.S. 1961, Air Force Institute of Technology
- Vito Louis Vitucci, New York
B.S. 1942, U.S. Naval Academy
- Jack Armstrong Walker, Florida
B.Bldg.Constr. 1957, University of Florida
- Joseph Milton Ware, Florida
B.S. 1957, University of Houston
M.P.A. 1963, University of California, Los Angeles
- George Orland Watts, Oregon
A.B. 1956, University of Oregon
- Donald Newton Webster, Arizona
B.Gen.Ed. 1964, Municipal University of Omaha
- Oscar Milford Wells, Iowa
A.B. 1949, Marshall University
- Edward Charles West, Pennsylvania
B.S. 1950, U.S. Military Academy
M.S. 1956, Massachusetts Institute of Technology
- Kenneth Lee Westby, Michigan
B.B.A. 1954, University of Michigan
- James Dixon Wester, Maryland
B.S. 1961, Auburn University
- Emery Scott Wetzel, Jr., New Jersey
B.S. 1954, U.S. Military Academy
- Kenneth Vincent Wilson, Florida
B.S. 1955, U.S. Military Academy
- Albert Cornelius Winters, Jr., Pennsylvania
A.B. 1951, Duke University
B.S. 1955, U.S. Naval Academy

James Richard Wright, Illinois
 B.S. 1954, New York University
 Richard Robert Wyrrough, New Jersey
 B.S. 1950, U.S. Military Academy
 A.M. 1955, Georgetown University

Frederick Sullivan York, Florida
 B.S. 1947, St. Peter's College, New Jersey
 Russell Warren Youngblood, Pennsylvania
 B.S. 1954, University of Pennsylvania

MASTER OF SCIENCE IN FINANCIAL MANAGEMENT

Raymond Henry Berger, Jr., Maryland
 B.S. 1961, University of Maryland
 Paul Bystrak, Maryland
 A.B. 1965, University of Maryland
 Joe Oscar Hill, Jr., South Carolina
 B.B.A. 1962, Memphis State University
 Hartley Oliver Holte, Maryland
 B.S. 1955, U.S. Naval Academy
 John Francis Kunkel, Maryland
 B.S. 1964, University of Maryland
 Emsley Emmett Rogers, Oregon
 B.B.A. 1955, University of Oregon

Ferdinand Anselm Ruppel, Jr., Maryland
 B.S. 1959, Loyola College
 William Philip Rutledge, Maryland
 B.S. in Met.Engr. 1963, LaFayette College
 John Robert Smith, New York
 B.B.A. 1963, Siena College
 Eric Harry Steentofte, California
 B.S. 1961, U.S. Naval Postgraduate School

MASTER OF SCIENCE IN GOVERNMENTAL ADMINISTRATION

Henry Charles Kramer, Jr., Virginia
 B.S. in F.S. 1962, Georgetown University

Stephen Charles Orosz, Maryland
 A.B. 1964, Duquesne University

MASTER OF SCIENCE IN INTERNATIONAL AFFAIRS

Herman Carl Abelein, Colorado
 A.B. 1963, University of Mississippi
 Vincent Joseph Anania, Virginia
 B.S. 1944, U.S. Naval Academy
 A.M. 1963, The George Washington University
 John Elwin Arnold, New Jersey
 B.B.A. 1953, University of Mississippi
 Vernon Edward Arvin, Virginia
 A.B. 1956, College of William and Mary
 Maurice Irving Ashland, Nebraska
 B.Arch. 1955, University of Nebraska
 M.S. in Arch.Engr. 1964, University of Texas
 Orville Ray Baisden, Virginia
 B.S. in E.E. 1960, Texas Technological College
 Warren Paine Baker, Virginia
 A.B. 1939, Norwich University
 Harold Drake Barker, Rhode Island
 B.S. 1950, Miami University

Hugh James Bartley, Florida
 B.S. 1947, U.S. Military Academy
 M.B.A. 1956, Syracuse University
 M.S. 1960, The George Washington University
 Herbert Bauer, New York
 B.S. 1957, U.S. Naval Academy
 Stephen Clair Belechak, Pennsylvania
 B.S. 1953, Geneva College
 Milton Bellovin, New York
 B.B.A. 1942, City College, New York
 B.S. 1947, U.S. Military Academy
 Henry Junior Benit, Louisiana
 A.B. 1957, The George Washington University
 A.M. 1963, Louisiana State University
 John Grisett Boniface, Rhode Island
 B.S. 1945, U.S. Naval Academy
 Henry Richard Briarton, Colorado
 B.S. 1963, Arizona State University
 B.Gen.Ed. 1966, Municipal University of Omaha

- George Roy Brier, Maine
B.S. 1946, University of South Carolina
- B.S. 1961, U.S. Naval Postgraduate School
- Hugh Hunt Broadhurst, Jr., Arizona
B.S. 1952, U.S. Military Academy
M.B.A. 1963, Harvard University
- Earl Kent Buchan, Florida
B.Gen.Ed. 1961, Municipal University of Omaha
- Alexander Porter Butterfield, California
B.S. in Mil.Sci. 1956, University of Maryland
- William Kenneth Callam, Florida
A.B. 1966, The George Washington University
- William Edmund Callanan, New Jersey
A.B. 1943, Seton Hall University
- Lealie James Campbell, Jr., Kansas
A.B. 1966, University of Maryland
- Ronald Alistair Campbell, Rhode Island
B.S. 1952, U.S. Naval Academy
- William King Carey, California
B.S. in Mil.Sci. 1960, University of Maryland
- Richard Glenn Carnright, Illinois
B.S. 1946, U.S. Military Academy
- Edward Lull Cochrane, Jr., Pennsylvania
B.S. 1944, U.S. Naval Academy
- Paul Ellis Coke, California
A.B. 1957, University of the Philippines
- Henry Arthur Collin, Jr., Vermont
B.S. 1950, U.S. Naval Academy
M.B.A. 1964, University of Connecticut
- Robert Franklin Connally III, New Jersey
A.B. 1952, Washington and Lee University
- Thomas Morton Constant, Vermont
B.S. 1946, U.S. Military Academy
- Murray Clifton Cook, California
B.S. 1958, U.S. Naval Postgraduate School
- Edward William Cooke, Rhode Island
B.S. 1945, U.S. Naval Academy
- Walter Fletcher Daniel, Oklahoma
B.S. 1954, University of Oklahoma
- John Wesley Daniels, Tennessee
B.Gen.Ed. 1963, Municipal University of Omaha
- Bennie Luke Davis, Florida
B.S. 1950, U.S. Military Academy
- James Lyman Dawson, Wisconsin
A.B. 1949, Lawrence University
- Carlos Dew, Jr., Tennessee
B.S. 1946, U.S. Naval Academy
- Duane Darrell DeWitt, Florida
B.S. 1956, U.S. Naval Postgraduate School
- Richard Amos Dickins, New York
B.M.S. 1949, State University of New York, Maritime College
- Robert Lee Dodd, New Jersey
A.B. 1951, University of Missouri
- Joseph Brennan Drachnik, California
B.S. 1942, U.S. Naval Academy
- Marvin Leonard Duke, Missouri
B.S. 1951, U.S. Naval Academy
B.S. 1958, U.S. Naval Postgraduate School
M.S. 1959, Iowa State University of Science and Technology
- William Boyce Ecker, Nebraska
B.S. 1961, University of Maryland
- Van Thomas Edsall, Texas
B.B.A. 1951, University of New Mexico
M.B.A. 1959, University of Michigan
- Thomas Rogers Merrill Emery, Rhode Island
B.S. 1955, U.S. Naval Academy
B.S. in E.E. 1962, U.S. Naval Postgraduate School
- Albert Ronald Escola, California
B.S. 1960, Michigan State University
- Constantine Nicholas Evgenides, New York
A.B. 1956, University of Rochester
- Andrew Claude Ferguson, California
A.B. 1948, University of California, Los Angeles
- Eugene Priest Forrester, Tennessee
B.S. 1948, U.S. Military Academy
- William Lee Foust, Kansas
A.B. 1959, The George Washington University
- Steve Furimsky, Jr., Illinois
A.B. 1961, University of Chicago
- Alan Cabot Gault, Florida
B.S. 1944, Worcester Polytechnic Institute
M.S. 1947, Harvard University
- Eugene Dale Geiger, Indiana
B.S. 1951, Purdue University
M.S. 1960, U.S. Naval Postgraduate School
- John Love Gerrity, Virginia
B.S. 1947, U.S. Military Academy
- Raymond Harlan Gilbert, Jr., Ohio
B.S. 1946, U.S. Military Academy

- Gustav John Gillert, Jr., Florida
B.S. in Mil.Std. 1960, University of Maryland
- Kenneth Barton Glover, California
B.S. in Mil.Std. 1966, University of Maryland
- Edward Greer, West Virginia
B.S. in Ed. 1948, West Virginia State College
- Leonard LeRoy Griggs, Jr., Virginia
B.S. 1954, U.S. Military Academy
M.S. 1960, Air Force Institute of Technology
- Gerd Susman Grombacher, Illinois
B.S. in Mil.Std. 1961, University of Maryland
- Joseph Thomas Guastella, Alabama
A.B. 1957, Florida Southern College
- Edward Francis Gudgel, Jr., Kentucky
B.S. 1945, U.S. Military Academy
- Clement Davis Hamm, Jr., North Carolina
B.S. 1953, U.S. Naval Academy
B.S. 1962, U.S. Naval Postgraduate School
- Ralph Waldo Harned, Illinois
B.S. in M.E. 1949, Purdue University
- Ralph Majors Hays, California
B.S. 1954, University of Washington
- Thomas Bibb Hayward, California
B.S. 1947, U.S. Naval Academy
- John Leland Hedges, District of Columbia
A.B. 1948, Harvard University
- Richard Lewis Hellwege, Alabama
A.B. 1961, San Francisco State College
- Shannon Douglas Heyward, Rhode Island
B.S. 1957, U.S. Naval Academy
- John Davis Hollowell, New York
B.S. 1948, The Citadel
- Kenneth Clark Holm, Montana
B.S. 1946, University of Southern California
- Carl Harry Holt, Pennsylvania
B.S. 1950, University of Pittsburgh
- Everett George Hopson, Illinois
B.S. 1947, LL.B. 1949, University of Illinois
- Wallace D. Horton, Virginia
B.Gen.Std. 1966, Municipal University of Omaha
- Jere Howard Hudson, Texas
B.Gen.Ed. 1961, Municipal University of Omaha
- John Louis Insani, Massachusetts
B.S. in Mil.Sci. 1961, University of Maryland
- Fox Helms Johnston, Alabama
B.S. 1954, U.S. Naval Academy
- Richard Alastair Johnstone, New York
B.S. 1951, U.S. Naval Academy
- Vincent Anthony Jordan, Illinois
A.B. 1946, University of Illinois
J.D. 1949, Northwestern University
- Sidney Kaufman, Maryland
A.B. 1947, Wilmington College, Ohio
- Robert Rees King, Jr., California
B.S. 1949, University of California, Los Angeles
- Joseph Paul Kingston, Washington
B.S. 1949, U.S. Military Academy
- John Miller Kirk, Florida
B.S. 1950, U.S. Naval Academy
A.M. 1966, University of Denver
- Lee Andrew Kirstein, Pennsylvania
B.S. 1945, U.S. Naval Academy
- Alfred Maria Koster IV, South Dakota
B.S. 1957, U.S. Naval Academy
- Paul Kozelka, Michigan
A.B. 1966, University of Maryland
- Ralph Isaac Kretzer, Texas
B.S. 1963, Oklahoma State University of Agriculture and Applied Science
- Kenneth Kruse, California
B.Gen.Ed. 1964, Municipal University of Omaha
- Joseph Nicholas Laccetti, New Jersey
B.S. 1950, U.S. Military Academy
- Arthur Joseph Lacouture, Jr., Kansas
B.S. 1943, U.S. Military Academy
M.S. 1955, University of Southern California
- Stuart David Landersman, Rhode Island
A.B. 1953, Dakota Wesleyan University
- Leonard Coles Langdon, Jr., Arizona
A.B. 1949, University of Arizona
A.M. in Govt. 1955, The George Washington University
- Sherwood Foster Lapping, Alabama
B.Gen.Ed. 1964, Municipal University of Omaha
- Burna Dale Levi, Jr., Florida
A.B. 1966, The George Washington University
- Christopher James Limerick, Jr., Massachusetts
B.S. 1950, Southeastern Massachusetts Technological Institute
M.S. 1962, Ohio State University

- Joseph Henry Livernash, Colorado
A.B. in Ind. Arts 1956, University of California, Santa Barbara
- Freeman Lee Lofton, Texas
B.S. 1963, U.S. Naval Postgraduate School
- Eldredge Richard Long, Jr., Nebraska
B.S. 1949, Creighton University
- Herlihy Townsend Long, Florida
B.S. in Mil.Std. 1961, University of Maryland
- Earl Henry Lubensky, Missouri
A.B. 1948, Missouri Valley College
B.S. in F.S. 1949, Georgetown University
- William Preston Lyons, Texas
B.S. 1954, College of the Ozarks
- Chester Michael Mack, Pennsylvania
B.S. 1953, Pennsylvania State University
- John Evans Madison, California
B.Gen.Ed. 1964, Municipal University of Omaha
- Terrence Michael Mahony, Oregon
B.S. 1957, U.S. Naval Academy
B.S. 1962, U.S. Naval Postgraduate School
- George Aloysius Maloney, Virginia
B.S. 1947, U.S. Military Academy
M.B.A. 1956, Syracuse University
- Donell Mathews, Florida
B.Gen.Ed. 1966, Municipal University of Omaha
- Gerald Duane McCarthy, Iowa
B.S. 1954, U.S. Naval Academy
- John Hoffman McConnell, Jr., Pennsylvania
A.B. 1964, U.S. Naval Postgraduate School
- Robert Lee McDaniel, Texas
B.S. 1945, U.S. Military Academy
M.S. in Aero.Engr. 1961, Georgia Institute of Technology
- Joseph Anthony McDonough, Jr., Pennsylvania
B.S. 1954, U.S. Coast Guard Academy
- Thomas James McEnaney, Jr., New York
B.S. 1955, College of the Holy Cross
- Quocan Philip McGillivray, Oregon
B.S. 1951, University of Oregon
M.P.A. 1958, University of Denver
- Elmer Viven McKeever, California
B.S. in Mil.Std. 1962, University of Maryland
- Malcolm McLean, Maryland
A.B. 1948, Yale University
- James Alfred Meacham, South Carolina
B.J. 1952, University of Missouri
- Robert McNair Mebane, North Carolina
A.B. 1950, University of North Carolina
- Robert Anthony Meisenheimer, Illinois
B.S. 1955, U.S. Military Academy
M.S. 1960, Iowa State University of Science and Technology
- Charles Gustavus Memminger, Florida
B.S. 1946, U.S. Military Academy
- Edward Charles Meyer, Pennsylvania
B.S. 1951, U.S. Military Academy
- Donald Marchand Miller, Ohio
B.S. 1943, U.S. Naval Academy
- Robert Lantz Miller, Pennsylvania
B.S. 1951, U.S. Naval Academy
- Jimmie Rodgers Moore, Alabama
B.S. 1957, U.S. Naval Academy
- Marion Eugene Morris, Tennessee
B.S. 1963, U.S. Naval Postgraduate School
- Thomas Lyons Moses, New Mexico
B.S. 1949, U.S. Military Academy
- James Irvin Muir, Jr., South Carolina
B.S. 1939, U.S. Military Academy
- James Patrick Mullins, Arizona
B.Gen.Ed. 1964, Municipal University of Omaha
- Maurice Oscar Muncie, Rhode Island
B.S. 1946, U.S. Naval Academy
- William Arch Murphy, Rhode Island
B.E. 1951, Vanderbilt University
- Norman Clarence Nadon, Alabama
B.S. in Mil.Sci. 1963, Municipal University of Omaha
- James Wilson Nance, North Carolina
B.S. 1944, U.S. Naval Academy
- George Joseph Nelson, New Jersey
B.S. 1946, U.S. Military Academy
- Robert Charles Nelson, Florida
B.S. 1949, U.S. Military Academy
M.S. 1955, University of Illinois
- Richard Yates Newton, Jr., Florida
B.S. 1950, U.S. Military Academy
M.P.A. 1964, The George Washington University
- Joseph Mormino Notargiacomo, New York
B.S. 1955, Fordham University
- Frank Vincent Ortiz, New Mexico
B.S. 1950, Georgetown University
- John Dale Pafenberg, Virginia
A.B. 1950, Franklin College of Indiana
- John Joseph Pavelle, Jr., Rhode Island
B.S. 1946, U.S. Naval Academy

- Ernest William Payne, Maryland
A.B. in Govt. 1943, The George Washington University
- Harris Peel, Vermont
B.S. 1950, Columbia University
- Engelbert George Pezzei, New Jersey
A.B. 1960, University of Colorado
- Richard John Pfrang, New York
A.B. 1955, Sacramento State College
M.S. in Per.Adm. 1966, The George Washington University
- Richard Sharon Pohl, Georgia
B.S. 1946, U.S. Military Academy
- Alexander Richard Posniak, Alabama
A.B. 1962, University of Maryland
- Wyman Jesse Priester, Jr., Georgia
A.B. 1949, Mercer University
- Lynn Cecil Pursell, Jr., California
B.S. 1950, California State Polytechnic College
- Eugene Phillip Reeder, Virginia
B.S. in Mil.Sci. 1956, University of Maryland
- William Frank Regan, Connecticut
B.S. 1946, U.S. Naval Academy
- Marion Rich Richards, Utah
B.S. 1946, U.S. Military Academy
M.S. 1963, University of Colorado
- William Joe Richardson, Kansas
B.S. 1953, U.S. Naval Academy
M.B.A. 1963, University of Chicago
- Jack Kermit Ringler, Tennessee
A.B. 1952, University of Utah
- Dayton Robinson, Jr., Alabama
B.S. 1950, University of Alabama
- Kenneth Frank Robinson, Rhode Island
B.S. 1957, U.S. Naval Academy
- John James Rosenow, California
A.B. 1952, Sacramento State College
- Robert Martin Rufsvold, Minnesota
B.S. 1946, U.S. Military Academy
M.S. 1954, California Institute of Technology
- Richard Edwards Rumble, Virginia
B.S. 1944, U.S. Naval Academy
- Carl Glendon Schneider, Texas
B.S. 1964, Arizona State University
- Denis Thomas Schwaab, New Jersey
A.B. 1956, Muhlenberg College
- Robert Scurlock, California
B.S. 1954, Ohio State University
M.B.A. 1961, University of Southern California
- Edward Amacker Sechrest, Missouri
B.S. 1956, U.S. Naval Academy
B.S. in E.E. 1962, U.S. Naval Postgraduate School
- Carl Henry Sell, Rhode Island
A.B. 1948, Nebraska Wesleyan University
- Joseph Phillip Seymoe, Texas
B.S. 1948, U.S. Military Academy
- William Francis Shea, Maryland
B.S. 1945, U.S. Merchant Marine Academy
B.S. in F.S. 1951, Georgetown University
- Elwood Howard Shemwell, Washington
A.B. 1947, Washington State College
- Alvan Carr Sherrill, Jr., Florida
B.S. in E.E. 1962, Texas A&M University
- William Josephus Sims, Arizona
B.S. in Mil.Sci. 1958, University of Maryland
- Ray Benjamin Sitton, Florida
B.S. in Mil.Sci. 1954, University of Maryland
- Hugh Thornber Smith, Rhode Island
B.S. in Agr.Engr. 1951, B.M.E. 1952, Auburn University
- Fred David Snyder, California
A.B. 1950, University of Arizona
- David Walter Somers, Rhode Island
B.S. 1955, University of Maryland
- Ralph Howard Spanjer, Florida
A.B. 1962, The George Washington University
- Joseph Leon Strelecki, Jr., Pennsylvania
A.B. 1962, Park College
- Bennie Walker Summers, Pennsylvania
B.S. in Mil.Sci. 1964, Municipal University of Omaha
- Kenneth Lee Tallman, Florida
B.S. 1946, U.S. Military Academy
- Harold Lewis Terry, Ohio
B.S. 1962, U.S. Naval Postgraduate School
- Robert Joseph Thomas, Georgia
A.B. 1962, The George Washington University
- Lewis Burton Tixier, Texas
B.S. 1946, U.S. Military Academy
- Wycliffe David Toole, Jr., Florida
B.S. in Mil.Sci. 1955, University of Maryland
- Tommy Park Trexler, North Carolina
B.S. in Mil.Std. 1964, University of Maryland
- Paul Russell Tripp, New Jersey
A.B. 1958, Northwestern University
- Thomas Kenneth Trotter, California
A.B. 1950, The George Washington University

John Truhan, Hawaii
 B.S. in E.E. 1947, Louisiana
 Polytechnic Institute
 Jack Maynard Tumlinson, New Mexico
 B.S. in Mil.Std. 1964, University of
 Maryland
 Joseph Martin Tyndall, Nebraska
 A.B. 1943, Boston College
 Cecil Russell Vollmer, Florida
 A.B. 1960, University of Mississippi
 Cedric Sterling Wallace, Oregon
 B.S. 1952, U.S. Naval Academy
 B.S. 1960, U.S. Naval Postgraduate
 School
 Marvin Octavius Weber, Jr., Minnesota
 B.S. 1943, U.S. Military Academy
 William Arthur Wilkinson, Florida
 B.S. 1958, Florida Southern College

John Mylin Will, Jr., California
 B.M.E. 1954, Cornell University
 Garry Leonard Wilson, West Virginia
 B.S. 1957, U.S. Naval Academy
 David William Winn, Minnesota
 A.B. 1958, University of Minnesota
 Warren Stanton Woirol, Ohio
 B.S. in Aero.Engr. 1949, University of
 Cincinnati
 John David Yamnicky, Florida
 B.S. 1952, U.S. Naval Academy
 Henry Clay Yawn III, Iowa
 B.S. 1957, University of New Mexico
 Robert Allen Young, Wyoming
 B.S. 1951, U.S. Naval Academy
 Charles John Youngblade, Florida
 B.S. 1949, U.S. Naval Academy
 Andrew Mathew Zimmer, Indiana
 B.S. in Ed. 1942, Indiana University

MASTER OF SCIENCE IN PERSONNEL ADMINISTRATION

Herbert Ernest Aikens, Florida
 B.S. 1963, Central State College, Ohio
 Charles Joseph Bauer, Virginia
 A.B. 1960, The George Washington
 University
 Gerald Joseph Brunning, Jr., Maryland
 A.B. 1958, Canisius College
 James Michael Burke, Virginia
 A.B. 1965, University of Maryland
 Frederick Andrews Edwards, Jr.,
 Maryland
 B.S. 1950, U.S. Naval Academy
 James Edward Farley, Jr., Maryland
 B.S. 1960, University of Scranton
 Ted Perley Fenno, Maryland
 B.S. 1961, U.S. Naval Academy
 Robert Cloyd Furrer, Illinois
 B.S. in Mil.Std. 1962, University of
 Maryland
 Peter Jack Garfield, New York
 B.S. 1960, U.S. Naval Academy
 Robert Francois Glineur, Belgium
 Certificate 1950, Royal Military
 Academy of Belgium
 Lawrence Charles Held, Virginia
 A.B. 1961, Syracuse University
 Richard Joseph Herbst, Pennsylvania
 B.S. 1957, University of Maryland
 James Donald Hibarger, Virginia
 A.B. 1955, Northwestern University
 Orlin Arnold Phillip Hughes, Virginia
 B.S. in Mil.Std. 1960, University of
 Maryland
 Edmund William Jaworski, California
 B.S. 1947, U.S. Naval Academy

Jacob Donald Kertz, Illinois
 B.S. 1951, University of Idaho
 M.S. 1961, U.S. Naval Postgraduate
 School
 William Russell Ketron, Virginia
 A.B. 1964, Lynchburg College
 Jerold LaVerne Krumwiede, Minnesota
 B.S. 1954, U.S. Naval Academy
 M.S. 1959, U.S. Naval Postgraduate
 School
 M.S. in I.A. 1965, The George
 Washington University
 Jack Quentin Lewis, Virginia
 B.B.A. 1963, Old Dominion College
 George Linus McFadden, Jr.,
 Pennsylvania
 B.Gen.Ed. 1961, Municipal University
 of Omaha
 Clarence Agee Melvin, Illinois
 B.S. in M.E. 1938, U.S. Naval
 Academy
 Donald Edwin Newell, Jr., Illinois
 A.B. 1961, DePaul University
 Robert Cushman Otto, Iowa
 B.S. in Aero.Engr. 1950, Purdue
 University
 William Carroll Parrish, Connecticut
 A.B. 1966, The George Washington
 University
 Dwight Elton Roberts, Colorado
 B.S. 1949, Colorado State University
 Richard William Sachwitz, Illinois
 A.B. 1962, Southern Illinois University

Carl Glenville Shaffer, Jr., Connecticut
 B.S. 1963, U.S. Air Force Academy
 Derek Jan Stryker, New York
 A.B. 1963, Roanoke College
 Willard Lee Umphrey, Virginia
 B.S. 1963, U.S. Naval Academy

Arthur Donald Weren, Illinois
 B.S. 1960, Illinois Institute of Technology
 Donald Claire White, Kansas
 B.B.A. 1953, University of Oklahoma

MASTER OF SCIENCE IN PUBLIC ADMINISTRATION

Don Loring Anderson, Virginia
 A.B. 1955, University of Richmond
 William Garnet Anderson, Jr., Virginia
 B.S. in E.E. 1954, Virginia Military Institute
 Jerome Rash Barnes, Florida
 Mus.B. 1953, University of Miami
 William Arthur Barnett, California
 B.S. 1955, M.B.A. 1956, University of California, Berkeley
 Emil Edward Boado, North Carolina
 B.S. 1956, East Carolina College
 Jesse William Campbell, California
 A.B. 1952, Fresno State College
 Loyal Eugene Carlson, Montana
 A.B. 1954, University of Montana
 William Morrison Constantine, Missouri
 A.B. 1956, University of Missouri
 Arthur Joseph Copp, New Hampshire
 A.B. 1954, University of New Hampshire
 George Leslie Draper, New York
 B.S. 1964, Arizona State University
 George Joseph Ellis, Jr., New York
 A.B. 1956, Yale University
 Francis Richard Fanning, Kansas
 A.B. 1961, University of Houston
 Robert Fitzsimmons, Washington
 A.B. in Ed. 1954, Washington State University
 Horace Rix Furlough, Virginia
 B.Gen.Ed. 1965, Municipal University of Omaha
 David Parker Gibbs, Jr., Virginia
 B.S. 1957, U.S. Military Academy
 Charles Delmar Greenwood, California
 B.S. in Ed. 1956, University of Southern California
 William Gardner Hamill, Alabama
 A.B. 1955, University of Maryland
 Thomas Joseph Hickey, Missouri
 B.S. in E.E. 1956, State College of Iowa
 Melton George Holubec, Texas
 B.S. in Agri.Ed. 1954, Texas A&M University
 Frank William Janssen, Ohio
 A.B. 1953, University of Virginia

John Herman Johannes, California
 B.S. in Mil.Sci. 1964, Municipal University of Omaha
 Roger Earl Johnson, Arizona
 B.S. 1953, University of Arizona
 Thomas James Johnson, New York
 A.B. 1953, St. Bernard's Seminary and College
 Allan Martin Jokela, Michigan
 A.B. 1955, University of Michigan
 Richard John Kiefer, Ohio
 B.S. 1955, U.S. Naval Academy
 Romain Frederick Krzmarzick, Oregon
 B.S. in Ed. 1953, University of North Dakota
 Raymond Louis Kuhlman, Illinois
 B.S. 1954, University of Wisconsin
 Salvatore Robert Lemole, New York
 B.S. 1953, City College, New York
 Alan Lee Lomax, Kansas
 A.B. 1954, Washburn University of Topeka
 Donovan Loren Lyon, California
 A.B. 1956, Occidental College
 Robert Pat McGroarty, Pennsylvania
 A.B. 1955, University of Maryland
 James Franklin Melton, Arkansas
 A.B. 1965, Arkansas Polytechnic College
 Robert William Mills, Missouri
 B.Gen.Ed. 1961, Municipal University of Omaha
 Donald Perry Morse, Tennessee
 B.S. 1966, Middle Tennessee State University
 Juri Vello Nou, New Jersey
 A.B. 1952, McMurray College
 M.S. 1961, Pennsylvania State University
 Clifford Dean Peterson, Minnesota
 B.S. 1956, U.S. Naval Academy
 Fred Allan Petty, Iowa
 B.S. in E.E. 1957, Iowa State University of Science and Technology
 Richard Wendell Phillips, Jr., California
 B.S. 1953, U.S. Military Academy
 Gene Dale Rawlings, Florida
 B.S. 1953, University of Kentucky

Richard Clay Reynolds, Jr., Texas
 B.S. 1956, Texas A&M University
 Mitchell Brown Riley, West Virginia
 A.B. 1954, Catholic University of
 America
 B.S. 1964, University of Oklahoma
 Jerry Owen Robinette, Texas
 B.B.A. 1954, Texas A&M University
 James Lee Shanks, South Carolina
 B.Gen.Ed. 1965, Municipal University
 of Omaha
 John Albert Shaud, Ohio
 B.S. 1956, U.S. Military Academy
 Paul Gregory Smith, New Hampshire
 A.B. 1952, Boston College
 Lowell Edward Socolofsky, Kansas
 B.S. 1956, Kansas State University of
 Agriculture and Applied Science
 Richard Byron Spencer, Texas
 B.S. 1954, U.S. Naval Academy

Roy LaVerne Thompson, New York
 A.B. 1960, Syracuse University
 Ellis Cutler Vander Pyl, Jr., Ohio
 B.S. 1953, Miami University
 Albert Louis Villaret, Tennessee
 B.S. 1953, U.S. Naval Academy
 Robert Brown White, West Virginia
 A.B. 1954, West Virginia University
 William Raymond Wilson, Ohio
 A.B. 1954, Ohio University
 Lyman Gene Winchester, Idaho
 B.S. 1957, Utah State University of
 Agriculture and Applied Science
 Jerry Claude Witherington, Virginia
 B.S. in B.A. 1953, University of
 Richmond
 Stephen Richards Woods, Jr., Tennessee
 B.S. 1956, U.S. Military Academy

Winter Convocation, February 22, 1968

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Student Marshal: Lawrence Jay Pearson

ASSOCIATE IN ARTS

Margaret Fay Ferguson, District of
 Columbia

Anne Woodring Poland, Virginia
 Jeffrey Roy Siegel, New Jersey

BACHELOR OF ARTS

Joseph Kane Abel, Washington
 Speech
 Paul Mark Axelrod, Maryland
 Anthropology
 Gaston Enrique Ayoroa, Maryland
 Latin American Studies
 Anne Gray Bahlman, Maryland
 Biology
 John Henry Bennett, South Carolina
 English Literature
 Herbert Barry Berkowitz, Virginia
 Journalism
 Sharon-Lee Berns, District of Columbia
 Philosophy
 Howard Michael Blaker, Maryland
 Psychology
 Dale Ann Carrell, Texas
 Art History and Theory
 Victor Francis Clark, Indiana
 History

Robert Louis Cohen, Florida
 Sociology
 Ina Wallace Connaway, Texas
 Fine Arts
 Deanna D'Angelo, Maryland
 Dramatic Art
 Barry Franklin Davies, New Jersey
 Art History and Theory
 Karen Marie de Nocenzo, Connecticut
 Anthropology
 Jay Bury Derrickson, District of
 Columbia
 Art History and Theory
 Suzanne Elizabeth Dixon, Pennsylvania
 Art History and Theory
 Heidi Caroline Dulay, District of
 Columbia
 Philosophy

- Nadia Hosni El Sebai, District of Columbia
Economics
- Elaine Oshinsky Feidelman, Maryland
Music History and Literature
(With Distinction)
- Barbara Hyman Felson, Maryland
Political Science
- John Gibson Franklin, Jr., District of Columbia
History
- Arthur Hatfield Gardner, District of Columbia
Mathematics (With Distinction)
- Peter Lane Garwood, North Carolina
History
- Margaret Hedetniemi Glenn, District of Columbia
History (With Distinction and Special Honors)
- Diann Gray, Virginia
Sociology
- Dena Ellen Gittleman Greenstein, Virginia
Sociology
- Isabelle Anthony Gregg, Pennsylvania
Anthropology
- Robert James Griggs, Virginia
Sociology
- Helen Nesbit Grubbs, District of Columbia
Economics
- Estelle Louise Grudzinski, District of Columbia
Spanish Language and Literature
- Beatrice Ann Hackett, District of Columbia
Psychology
- Tamar Heringman, Maryland
Political Science
- Stephen Daniel Hopper, New Jersey
History
- Susan Mieko Ichinose, Hawaii
American Thought and Civilization
- Shail Bala Jain, District of Columbia
Mathematical Statistics
- Gillian Dorothy Johnson, Maryland
Fine Arts
- Charles Louis Jones, Maryland
Sociology
- Judith Nancy Kempler, Connecticut
Sociology
- Lucy Howe Keough, Massachusetts
Economics
- Jan Kocourek, District of Columbia
Journalism
- Leslie Jill Lefton, District of Columbia
Speech
- Enid Light, Maryland
English Literature
- Donald John Looft, Virginia
Economics
- Elsie Diane Lyle, New Jersey
French Language and Literature
- Malcolm Prentice MacDougall, Delaware
Journalism
- John Smibert MacKay, Connecticut
Philosophy
- Hanna Marks, District of Columbia
Germanic Languages and Literatures
(With Distinction)
- Alice Eugenia Martinez, Maryland
Spanish Language and Literature
- Margarita Maria Mazzeo, Virginia
Spanish Language and Literature
(Special Honors)
- Josephine McFarlen, Virginia
Fine Arts
- Mical Ellen Miller, Virginia
Psychology
- Natalie Golovin Nelson, Virginia
Economics
- Susan Carroll New, Virginia
Anthropology
- Terry Tokar O'Connor, Virginia
American Thought and Civilization
- Martha Olmstead, District of Columbia
History
- Julie Ann Osler, New York
Speech
- Maja Frances Paolozzi, California
Philosophy
- Brian Michael Paphides, Virginia
English Literature
- Kathleen May Peak, Virginia
Philosophy (Special Honors)
- Lawrence Jay Pearson, District of Columbia
Economics (With Distinction)
- Richard Eugene Pectol, Virginia
Psychology
- Helen Leese Pelikan, Maryland
Psychology
- Todd Seitner Phillips, Maryland
History
- Margaret Holladay Pitts, Virginia
Anthropology
- Patricia Reifenrath, New Jersey
Sociology
- Elizabeth Meehan Ritenour, New Jersey
Political Science

Carlos Robinson Rodriguez, Republic
of Panama
Economics
Daphne Weary Rowsey, Virginia
French Language and Literature
Beverly Faylor Sater, Ohio
English Literature
Warren Allen Seitz, Virginia
Psychology
Larry Wayne Self, Virginia
Economics
Nathan Michael Shapiro, District of
Columbia
History
Jan Alexis Shirley, Virginia
Political Science
LaVonne Marlene Siegel, Ohio
History
Evelyn Phoebe Slaughter, District of
Columbia
English Literature
Patrick Neil Smith, Maryland
Psychology
Minna Sara Spencer, New York
Psychology
Charles Day Stake, New Jersey
Psychology

Diane Beth Stat, Delaware
Journalism
Gloria Ann Steele, Virginia
Psychology
Frederick Charles Templeton,
Pennsylvania
English Literature
Judith Lynne Thorpe, New Jersey
Political Science
Charles Lawrence Trichilo, Virginia
Chemistry
Joan Christine Van Blake, New Jersey
Sociology
Marilyn Trixie Van Horn, Maryland
Political Science
Dorte Vinten-Johansen, Maryland
Political Science
Alan Gabriel Wellikoff, New York
American Thought and Civilization
David Carroll Wenner, District of
Columbia
Sociology
JoAnne Lightle Willette, Virginia
Sociology
Michael Joseph Zagaris, California
History

BACHELOR OF SCIENCE

Anthony Francis Barteck, Maryland
Chemistry
Bernard Whitney Bise, Virginia
Chemistry
Jacob Julius Guth, Virginia
Chemistry
George Henry Hamilton, District of
Columbia
Geology

James Mason Peck, Jr., California
Zoology
Harold Murray Sparck, Maryland
Biology
Paula Turney, Maryland
Mathematics

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

Veronica Lovass Pugh, Virginia

GRADUATE SCHOOL OF ARTS AND SCIENCES

MASTER OF ARTS

David Clark Adams, Maryland
History
B.A. 1958, Kenyon College
Robert Ames Alden, Virginia
History
B.A. 1965, George Washington
University

Byron Frank Battle, District of
Columbia
Economics
B.A. 1961, Duke University
M.A. 1964, Columbia University

- Elizabeth Katherine Bond, District of Columbia
Psychology
B.A. 1965, Marquette University
- Karen Hansen Bourdon, Virginia
Psychology
B.A. 1958, University of North Carolina
- Eve Ruth Bowers, Pennsylvania
History
B.A. 1963, Pennsylvania State University
- Rosemary Ann Breen, Connecticut
Art History and Criticism
B.A. 1965, George Washington University
- Dee Birch Cameron, Texas
English and American Literature
B.A. 1964, University of Pittsburgh
- Sheila Hannah Cantor, New York
Museology
B.A. 1966, University of California, Los Angeles
- Giordano Angelo Chiaruttini, District of Columbia
Latin American Studies
B.S. in F.S. 1962, Georgetown University
- Robert Dale Doane, Maryland
Political Science
B.A. 1965, Lynchburg College
- Stephanie Mara Engel, New York
Speech Pathology and Audiology
B.A. 1966, George Washington University
- Joyce Ann Godwin, Florida
Political Science
B.A. 1965, Florida State University
- William Alan Gralnick, Pennsylvania
Political Science
B.A. 1965, George Washington University
- Ruth Joan Hurvitz, Maryland
Speech Pathology and Audiology
B.A. 1965, George Washington University
- Jeremy Bradford Cook Jackson, District of Columbia
Geology
B.A. 1965, George Washington University
- Louise Margaret Jansen, Virginia
Spanish Language and Literature
B.S. in L.S. 1933, B.A. 1934, College of St. Catherine
M.A. in L.S. 1938, University of Michigan
- Ellyn Kaschak, New York
Psychology
B.A. 1965, State University of New York at Binghamton
- John Logan Kemple, Maryland
History
B.A. 1963, George Washington University
- Donald Everett Kloster, Virginia
History
B.A. 1961, Luther College
- May Rawitch Leisinger, Maryland
Psychology
B.S. 1939, Cornell University
- William Essig Lindsey, Virginia
Psychology
B.A. 1963, Duke University
- Jean Said Makdisi, Palestine
English Literature
B.A. 1961, Vassar College
- William Magruder Maury, Maryland
History
B.A. 1965, University of Maryland
- Bertha Louise McKann, Virginia
Art History and Criticism
B.A. 1965, American University
- Frederick John Oeltjen, Maryland
Psychology
B.A. 1964, George Washington University
- Jorge Vicente Ordenes, Virginia
Spanish Language and Literature
B.A. 1965, George Washington University
- Flora Barta Paasonen, District of Columbia
Speech Pathology and Audiology
B.Mus.Ed. 1955, Catholic University of America
- Dorothy Alice Peters, Virginia
Speech Pathology and Audiology
B.A. in Ed. 1961, George Washington University
- Alain Francois Revon, France
Sociology
B.A. 1966, Columbia University
- Lilla Evelyn Roache, Virginia
Sociology
B.A. 1960, College of William and Mary
- Lynn Mozzochi Scelfo, Virginia
Psychology
B.A. 1965, Alfred University
- Evelyn Carolyn Schaefer, Virginia
Psychology
B.A. 1958, Wittenberg University

Robert Michael Silberfarb, Maryland
Psychology
B.A. 1958, Allegheny College
Patricia Ann Smith, Maryland
Art History and Criticism
B.A. 1956, Columbia Union College
Anthony Joseph Sulvetta, Virginia
Economics
B.A. in Govt. 1966, George
Washington University

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Sociology
B.A. 1963, College of William and
Mary
Susanna Young, District of Columbia
Speech Pathology and Audiology
B.A. 1965, Brooklyn College

MASTER OF SCIENCE

Anne Pemberton Ahlstrom, Virginia
Anatomy
B.A. 1964, Keuka College
Thomas Slack Baskett, District of
Columbia
Mathematics
B.S. 1935, U.S. Naval Academy
Ronald Anthony Browning, Maryland
Pharmacology
B.S. in Phar. 1963, George Washington
University
Faye Motyka Hoffman, Maryland
Chemistry
B.S. 1959, George Washington
University
Patricia Ann Hopfenspirger, District
of Columbia
Applied Statistics
B.A. in Ed. 1966, George Washington
University
Richard Carter Lee, Maryland
Physics
B.A. 1962, Harvard University
Howard George McCutcheon, District
of Columbia
Mathematics
B.S. 1964, Carnegie Institute of
Technology

Geraldine Vaughan Mitchell, District
of Columbia
Biochemistry
B.S. 1962, Virginia Union University
Sally Ann Mulhern, Massachusetts
Biochemistry
B.S. 1966, Marymount College,
New York
Gwendolyn Ann Washington Pla,
Arkansas
Biochemistry
B.S. 1961, Fisk University
Richard Lee Sapperstein, District of
Columbia
Pharmacology
B.S. in Phar. 1963, George Washington
University
Amnuay Thitbapandha, Thailand
Pharmacology
B.S. 1965, University of Adelaide,
Australia
Richard Derrell Towner, Maryland
Biochemistry
B.S. 1958, Shepherd College

MASTER OF FINE ARTS

Monty Kaye Leake, District of Columbia
Painting
B.A. 1966, George Washington
University
Audrey Gardner Wright, Maryland
Painting
B.S. 1945, University of Wisconsin

DOCTOR OF PHILOSOPHY

Suzyl Louisa Bane, Texas
Biochemistry
Dissertation: *Sex Differences in the Respiratory Rates of Parenchymal Liver
Cell Suspensions*
B.A., B.S. 1955, M.A. 1956, Texas Woman's University

- Vida Helms Beaven, Maryland
 Biochemistry
 Dissertation: *Studies on the Biosynthesis of Actinomycin*
 B.A. 1961, M.A. 1962, Indiana University
- Elizabeth Stirling Cole, Virginia
 Psychology
 Dissertation: *The Investigation of Concept Attainment in Schizophrenia Utilizing a Nonverbal Sorting Technique*
 B.A. 1958, M.A. 1960, George Washington University
- Anne Deing Cordero, Virginia
 French Language and Literature
 Dissertation: *Symbols of Tension in the Theater of the Absurd*
 Diplom Dolmetscher 1955, Johannes-Gutenberg Universitat, Germany
 M.A. 1957, University of Florida
- Robert Lee Farrell, Maryland
 Economics
 Dissertation: *An Examination of Differentiated Cross-sectional Price, Cost, Quality, and Demand Relationships in Higher Education*
 B.S. 1957, Purdue University
 M.A. 1962, George Washington University
- Robert Gordon, Maryland
 Pharmacology
 Dissertation: *Studies on the Regulation of Catecholamine Biosynthesis*
 B.S. 1955, Brooklyn College of Pharmacy
 M.S. 1962, Purdue University
- Harold Allen Hovey, Ohio
 Political Science
 Dissertation: *The Role of Economic Analysis in the Political Process: An Appraisal of the Planning-Programming-Budgeting System*
 B.A. 1958, Wabash College
 LL.B. 1964, George Washington University
- Homer Howard Hurley, North Carolina
 Botany
 Dissertation: *A Taxonomic Revision of the Genus Spigelia (Longaniaceae)*
 B.S. 1955, North Carolina State University at Raleigh
 Ed.M. 1960, University of North Carolina
- Hsien Hsiang Ku, District of Columbia
 Statistics
 Dissertation: *The Problem of Interaction in Multidimensional Contingency Tables, an Information-theoretic Approach*
 B.S. in C.E. 1940, M.S.E. 1941, Purdue University
 M.S. 1960, George Washington University
- James Matthew McCullough, Virginia
 Botany
 Dissertation: *Physiological Predetermination of Germination Responses in Arabidopsis thaliana (L) HEYNH*
 B.S. 1951, M.S. 1952, Pennsylvania State University
- John Kent Minichiello, New Hampshire
 Mathematics
 Dissertation: *Negationless Intuitionistic Mathematics*
 B.S. 1963, M.S. 1964, George Washington University
- Harriet Ashinsky Mintz, District of Columbia
 Psychology
 Dissertation: *The Relationship between Self-concept and Body-percept in the Preschool Child and Their Influence on His Verbal Performance*
 B.A. 1955, Brandeis University
 M.A. 1959, Columbia University

- Alfred Lewis Nelson, Jr., Michigan
English Literature
Dissertation: *James Winston's Theatric Tourist: A Critical Edition, with a Biography and a Census of Winston Material*
B.A. 1938, M.A. 1940, Wayne State University
- Peter George Pentchev, Maryland
Biochemistry
Dissertation: *Studies of Mammalian Mutarotase*
B.S. 1962, M.S. 1964, George Washington University
- Charles Joseph Michael Rooney, Jr., New Jersey
American Thought and Culture
Dissertation: *Utopian Literature as a Reflection of Social Forces in America, 1865-1917*
B.S. 1957, Fordham University
- Ahmad Hussein Shamseddine, Pennsylvania
Economics
Dissertation: *Expansion of Imputations in National Income and Product Accounts: A Case Study of the Value of Housewives' Services in the United States*
B.A. 1962, M.A. 1963, Howard University
- Samuel Trychin, Jr., District of Columbia
Psychology
Dissertation: *Influences of Intraserial Distance and Subject Strategies on Organizational Factors in Short Term Memory*
B.A. 1960, M.A. 1962, George Washington University
- John Anthony Vozzo, Mississippi
Botany
Dissertation: *Inoculation of Pine with Mycorrhizal Fungi in Puerto Rico*
B.S. 1960, University of Maryland
M.S. 1963, George Washington University
- Dwight Geer Worden, Florida
Psychology
Dissertation: *A Value Analysis of Trends in Soviet Communications*
B.A. 1950, M.A. 1951, George Washington University

NATIONAL LAW CENTER

Student Marshal: Arline Burstein Mendelson

JURIS DOCTOR

- | | |
|--|---|
| Larry Joel Abraham, District of Columbia
B.A. 1964, Rollins College | Walter Roland Campbell, Maryland
B.S. in F.S. 1965, Georgetown University |
| Donna Carolyn Aldridge, Maryland
B.S. 1960, University of Maryland | Vincent George Cardella, Virginia
B.A. 1957, Villanova University |
| Christopher Beard, Maryland
B.B.A. 1965, George Washington University | William E. Casselman II, Virginia
B.A. 1963, Claremont Men's College |
| Stuart Edwin Beck, Virginia
B.S. in M.E. 1964, Drexel Institute of Technology | Donald Hamilton Clark, Virginia
B.S. 1959, U.S. Naval Academy |
| Peter Jeffrey Berman, Maryland
B.S. 1965, University of Maryland | Alan Theodore Dimond, Virginia
B.B.A. 1965, University of Miami |
| William Scott Bradbury, Virginia
B.S. in Ch.E. 1964, University of Arizona | James Ashley Endicott, Jr., Missouri
(With Honors)
B.S. 1960, The Citadel |
| | Noel Kenneth Evans, Virginia
B.A. 1962, University of Maine |

- Robert James Finan, Pennsylvania
(With Honors)
B.S. 1960, U.S. Coast Guard Academy
- Stephen Patten Fox, District of
Columbia
B.S. in E.E. 1964, Northwestern
University
- Gottlieb James Frick II, Missouri
B.A. 1963, Cornell University
- Thomas Allen Gallagher, Maryland
(With Honors)
B.S. in E.E. 1965, Tulane University
of Louisiana
- Jack Charles Goldstein, Texas
(With Honors)
B.S. in M.E. 1964, Purdue University
- Edward Thomas Green, Pennsylvania
B.A. 1961, George Washington
University
- Gregory Newton Harney, Virginia
B.A. 1960, George Washington
University
- Bonnie Kay Harrison, District of
Columbia
(With Honors)
B.A. 1965, Bucknell University
- Ronnie Dean Havelka, Virginia
(With Honors)
B.S. 1964, University of Illinois
- Ross Edward Heasley, Maryland
B.A. in Govt. 1960, George
Washington University
- Stuart Alan Heller, District of Columbia
(With Honors)
B.Ch.E. 1962, Rensselaer Polytechnic
Institute
- David Lamar Hill, Alabama
B.S. 1963, University of Alabama
- F. John Hill, Virginia
B.S. 1964, Brigham Young University
- John Bernard Holden, Jr., District of
Columbia
B.A. 1965, Ohio University
- John Stuart Hunter, District of Columbia
B.A. 1961, Georgetown University
- Denis Emerson Hynes, Minnesota
B.S. 1964, St. John's University,
Minnesota
- William Evert Jackson, District of
Columbia
(With Honors)
B.S. 1962, University of Rochester
- Dale Edward Johnson, Virginia
B.S. in M.E. 1959, University of
Washington
- Georg Robert Karsner, Kentucky
B.S. 1964, University of Kentucky
- Ivan Stoykov Kavrukov, Virginia
B.E.E. 1964, George Washington
University
- Warren Paul Kujawa, Virginia
B.S. 1964, College of William and
Mary
- Harry Thompson Lehrkind, Montana
B.A. 1964, University of Montana
- Harold Eugene Leiding, Nebraska
B.A. 1962, University of Nebraska
- Michael Stewart Leo, New York
(With Honors)
B.A. 1965, Brooklyn College
- Farrell LaVar Lines, New Mexico
B.S. 1963, Brigham Young University
- Claire Edna Marcuccio, Maryland
B.A. 1964, University of Maryland
- Robert Alton McNew, Virginia
(With Honors)
B.S. 1961, Louisiana State University
- Leslie Laszlo Megyeri, Maryland
B.A. 1963, George Washington
University
- Arline Burstein Mendelson, Maryland
(With Honors)
B.A. 1956, Barnard College
- M.A. 1959, Columbia University
- Samuel Elmore Mott III, Virginia
(With Honors)
B.Ch.E. 1960, Rensselaer Polytechnic
Institute
- John Joseph Mulrooney, Tennessee
B.S. in E.E. 1963, University of
Notre Dame
- Howard Thomas Nelson, Virginia
B.A. 1963, Brigham Young University
- Norman Fred Oblon, Virginia
(With Honors)
B.S. in Ch.E. 1964, Drexel Institute
of Technology
- James David Olsen, Virginia
(With Honors)
B.S. 1959, University of Oklahoma
- Jerome Michael Polaha, Nevada
B.A. 1964, University of Nevada
- Laurence Herbert Pretty, District of
Columbia
(With Honors)
B.S. 1958, University of London,
England
- Harry Wayne Quillian, Maryland
(With Honors)
B.A. 1960, Dartmouth College

Robert Gabriel Rabben, Virginia
 B.A. 1961, Temple University
 Michael Rudolph, Virginia
 B.S. 1961, Polytechnic Institute of
 Brooklyn
 Forest Richard Schuenman, Virginia
 B.S. 1964, University of Utah
 Walter Leonard Schwartz, Virginia
 B.E.E. 1955, Cooper Union
 M.S. in Engr. 1957, University of
 California, Los Angeles
 Thomas Allison Seeman, Pennsylvania
 B.S. 1957, Pennsylvania State
 University
 Sunny Acuff Seiler, Missouri
 B.A. 1965, Washington University
 Hulen Ray Selman, Texas
 B.A. 1964, University of Maryland
 Leonard Arnold Sloan, Virginia
 B.S. in B.A. 1962, American University
 David Phillip Stang, Pennsylvania
 B.A. 1961, Pennsylvania State
 University
 Gary Aceal Terry, Virginia
 B.A. 1964, University of California,
 Los Angeles

Robert Martin Trepp, Maryland
 B.S.E. 1961, University of Michigan
 Martin Andries Voet, Texas
 (With Honors)
 B.S. 1964, University of California,
 Berkeley
 Joseph Edward Vorbach, New York
 (With Honors)
 B.S. 1959, U.S. Coast Guard Academy
 Michael Lawrence Wachtell, Virginia
 (With Honors)
 B.E.E. 1964, City College, New York
 John Francis Ward, Maryland
 B.S. 1964, University of Maryland
 Roger Conant Wiegand, Virginia
 B.A. 1965, Harvard University
 John Frederick Wolf, Jr., Maryland
 B.A. 1964, Georgetown University
 Sheldon Wolfson, New York
 B.A. 1965, Hunter College
 Richard Arthur Zimmerman, Maryland
 (With Honors)
 B.A. 1964, Miami University

MASTER OF LAWS

Robert Richard Allan Briggs, Virginia
 B.A. 1956, LL.B. 1960, Columbia
 University
 M.B.A. 1962, New York University
 James Bradway Butler, Minnesota
 B.A. 1963, Harvard University
 LL.B. 1966, University of Minnesota
 Frank Arthur Gregory, Virginia
 LL.B. 1961, University of Oklahoma
 Lawrence I. Kipperman, Illinois
 B.A. 1963, J.D. 1966, University of
 Illinois
 Charles Myron Levy, Virginia
 B.A. 1960, Syracuse University
 LL.B. 1963, New York University
 Stephen Edward Moss, Maryland
 B.B.A. 1962, Baldwin-Wallace
 College
 LL.B. 1965, George Washington
 University
 Roger Carl Ohlrich, District of Columbia
 B.B.A. 1961, LL.B. 1964, University
 of Michigan
 David LeRoy Ryan, Kansas
 B.A. 1964, J.D. 1966, Washburn
 University of Topeka
 Thomas Arthur Wagoner, Nebraska
 B.S. 1960, LL.B. 1963, University
 of Nebraska
 Garrett Nicholas Wyss, District of
 Columbia
 B.A. 1957, University of Notre Dame
 LL.B. 1962, Catholic University of
 America

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Student Marshal: William Allen Lemeschewsky

BACHELOR OF SCIENCE (Civil Engineering)

Lawrence Joseph Kastner, Jr., Virginia

BACHELOR OF SCIENCE (Electrical Engineering)

Chafe Khaled Abou-Richeh, Lebanon
 Robert John Ein, Virginia

Richard Marc Fisher, New York
 David Leland Huff, Maryland

William Allen Lemeschewsky, Virginia
James Milton Moriarty, Virginia
John Bruce Pyle, Maryland

David Muri Thompson, Maryland
Paul Harrison Yorkdale, Virginia

BACHELOR OF SCIENCE (Electronics)

Martin John Myers, Virginia
(Special Honors)

BACHELOR OF SCIENCE (Mechanical Engineering)

Philip David Krauss, New York

MASTER OF ENGINEERING ADMINISTRATION

John James Ainley, Massachusetts
B.E.E. 1952, Polytechnic Institute
of Brooklyn
Edward Ehredt Atkinson, Virginia
B.S. 1949, Pennsylvania State
University
Richard Armstrong Ball, Virginia
B.E.E. 1960, Cornell University
Kenneth Allan Brow, Maryland
B.S. 1958, University of Maryland
Ronald Lawrence Carlberg, Delaware
B.S. 1961, U.S. Naval Academy
David Joseph Collins, Virginia
B.A. 1958, College of the Holy Cross
Nolan Kenneth Danchik, Maryland
B.S. in Engr. 1964, George Washington
University
Clarence Frederick Ey, Maryland
B.E.S. 1961, Johns Hopkins University
Nathan Glassman, Maryland
B.S. 1942, City College, New York
Howard Wayne Lehem, Maryland
B.S. in Engr. 1963, Johns Hopkins
University
Anthony Michael Lizzio, Maryland
B.S. 1955, University of Maryland
Stavros Loezos, Maryland
B.S. 1961, University of Maryland
Paul Emil Loustaunau, Virginia
B.S. 1939, U.S. Naval Academy
Thomas Arthur Mahar, Virginia
B.Ac.E. 1956, University of Detroit
Gerald Thomas McKindles, Maryland
B.S. 1950, Michigan Technological
University
Daniel Julian McNerney, Maryland
B.S. in E.E. 1961, Drexel Institute of
Technology

Norman George Myers, Maryland
B.S. in E.E. 1961, Virginia Polytechnic
Institute
Max Harold Novinsky, Maryland
B.C.E. 1941, City College, New York
James Richard Philblad, Maryland
B.S. in E.E. 1961, M.S. in E.E. 1962,
University of Illinois
Irving Martin Salzburg, Maryland
B.S. 1957, Polytechnic Institute of
Brooklyn
Robert Rudolph Schaaf, District of
Columbia
B.S. in C.E. 1936, Newark College of
Engineering
Frederick Seibold, Jr., Maryland
B.S. 1961, Webb Institute of Naval
Architecture
M.S. 1964, Massachusetts Institute
of Technology
Sheldon Herbert Slomowitz,
Pennsylvania
B.S. in E.E. 1954, Rutgers, the State
University
Robert Lee Smith, Virginia
B.S. 1949, Roanoke College
M.S. 1951, Virginia Polytechnic
Institute
Richard Arlen Stablein, Virginia
B.S. in E.E. 1962, University of
Washington
Peter Frank Urbach, Virginia
B.S. in E.E. 1957, Carnegie Institute
of Technology
LL.B. 1962, George Washington
University
George Byrd Wilkinson, Maryland
B.S. in E.E. 1962, Drexel Institute of
Technology

MASTER OF SCIENCE

- | | |
|--|--|
| Daniel Abenaim, Morocco
B.S. (Electronics) 1965, George Washington University | Donald Michael McNamara, Maryland
B.S. 1961, Pennsylvania State University |
| Nicholas Constantine Adamopoulos, District of Columbia
B.S. in E.E. 1963, Howard University | Warner Haines Miller, Maryland
B.S. in E.E. 1961, New Mexico State University |
| Dale Mallory Cunningham, Maryland
B.E. 1963, Vanderbilt University | Perry Spratt Plexico, Maryland
B.S. 1962, University of Maryland |
| Anthony Leonard Falotico, Maryland
B.S. in E.E. 1958, University of Notre Dame | David Butler Pye, Connecticut
B.M.E. 1963, Rensselaer Polytechnic Institute |
| James David George, District of Columbia
B.E.E. 1963, George Washington University | Robert Winters Rhodes, Jr., Maryland
B.S. 1961, George Washington University |
| Marvin Joseph Jostes, Maryland
B.S. in E.E. 1962, University of Missouri | Roy Francis Sloan, Maryland
B.S. in E.E. 1954, University of Missouri at Rolla |
| Raymond Edward Kelly, Virginia
B.E.E. 1963, George Washington University | Daniel Steiger, Maryland
B.S. 1962, Adelphi University |
| William Marshall Kendall, District of Columbia
B. Marine Engr. 1962, State University of New York, Maritime College | Joseph Anthony Toro, Virginia
B.S. in E.E. 1964, Virginia Polytechnic Institute |
| Pat Klaus, Virginia
B.S. 1962, University of Texas | Carl Webb Townsend, Maryland
B.S. 1962, Louisiana Polytechnic Institute |
| Donald Custis Lokerson, Maryland
B.E.E. 1962, George Washington University | Constantinos Vasilios Vasiliades, Virginia
B.S. in E.E. 1961, Howard University |
| Caldwell McCoy, Jr., District of Columbia
B.S.E. 1956, University of Connecticut | Philip Mayo Young, Maryland
B.M.E. 1963, Cornell University |

MASTER OF SCIENCE IN ENGINEERING

- | | |
|---|---|
| Peter Eugene Gurvin, Maryland
B.S. in C.E. 1962, University of Maryland | Thomas James Lawson, Maryland
B.S. 1954, U.S. Naval Academy |
| James Franklyn Hahn, Jr., Virginia
B.S. in E.E. 1960, Case Institute of Technology | Edwin Anthony Stennett, Maryland
B.E.E. 1962, George Washington University |
| | Jack Herman Zimmer, Maryland
B.E.E. 1962, Gannon College |

DOCTOR OF SCIENCE

- | | |
|---|--|
| John Henry Kelly, Maryland
Theoretical and Applied Mechanics
Dissertation: <i>A Unified Theory of Incremental Plastic Deformation Based on the Distribution of Dislocations, with Applications to Aluminum</i>
B.A. 1962, Johns Hopkins University
M.S. in Engr. 1965, George Washington University | |
|---|--|

SCHOOL OF EDUCATION

Student Marshal: Joanne Bodnar

BACHELOR OF ARTS IN EDUCATION

Joanne Bodnar, Virginia	April Anne McCord, Virginia
English (With Distinction)	Elementary Education
Karen Koerner Haff, Virginia	Lois Morris Rettie, Virginia
Social Studies	Elementary Education
Deborah Diane Hatch, Connecticut	Sharon Judith Tudor, District of
Elementary Education	Columbia
Margaret Brandon Jarman, District of	French
Columbia	Susan Lee Voss, District of Columbia
Elementary Education	Social Studies
Kathleen Kelly, District of Columbia	Sandra Elizabeth West, Maryland
English (With Distinction)	English
Mildred Colangelo Kerns, Virginia	Shirley Faye Wheeler, Virginia
Elementary Education	Mathematics

MASTER OF ARTS IN EDUCATION

Lorenzo Wilson Baldwin, Jr., Florida	Benjamin Harold Dean, Virginia
Secondary Education	Secondary Education
B.S. 1943, U.S. Naval Academy	B.S. 1944, U.S. Naval Academy
Eleanor Gertrude Baltimore, Maryland	Mary Penasack Demo, Virginia
Guidance	Secondary Education
B.S. 1943, Hampton Institute	B.A. 1950, College of St. Rose
Annie Kennedy Barbour, Maryland	Phyllis Ann Dunan, District of
Reading	Columbia
B.S. 1948, Hampton Institute	Elementary Education
Patricia Anne Barnes, Virginia	B.S. 1956, D. C. Teachers College
Special Education	Donald Thomas Dunlap, Jr., Maryland
B.A. 1963, Michigan State University	Secondary Education
Esther Bernstein, Maryland	B.A. 1961, Presbyterian College
Special Education	Ethel Thompson Eldridge, District of
B.S. 1959, University of Maryland	Columbia
Doris Jean Brodie, District of Columbia	School Administration
Elementary Education	B.S. 1940, Agricultural and Technical
B.S. 1948, Fayetteville State College	College of North Carolina
Robert Roy Budway, District of	Cecilia Marlene Fisher, District of
Columbia	Columbia
Secondary Education	Special Education
B.S. in P.E. 1962, George Washington	B.S. 1966, University of Maryland
University	Mildred Jones Fisher, District of
Virginia Wirt Callahan, District of	Columbia
Columbia	Elementary Education
Guidance	B.S. 1954, D. C. Teachers College
B.A. 1962, College of St. Catherine	Marjorie Tunick Fratkin, District of
Mildred Nero Clark, District of	Columbia
Columbia	Special Education
School Administration	B.S. 1961, Syracuse University
B.S. 1951, D. C. Teachers College	Lynn Ann Galbraith, Virginia
Betty Portal Cornish, District of	Elementary Education
Columbia	B.A. in Ed. 1965, George Washington
Guidance	University
B.S. 1956, D. C. Teachers College	

- Sandra Rose Gordon, Virginia
Special Education
B.A. in Ed. 1965, George Washington University
- Jane Vivian Greenstein, District of Columbia
Special Education
B.S. 1964, Boston University
- Benjamin Thompson Harris, Virginia
Physical Education
B.S. in P.E. 1953, George Washington University
- Robert Alan Hogue, Maryland
Physical Education
B.A. 1963, Shepherd College
- Judith Ann Husebo, Minnesota
Employee Training
B.A. 1959, University of Minnesota
- Janis Vivian Isenberg, Connecticut
Secondary Education
B.A. 1966, Adelphi University
- Miriam Petersen Jaegerman, Maryland
Elementary Education
B.A. 1945, Goucher College
- Joyce Simmons Jamison, District of Columbia
Elementary Education
B.S. 1958, D. C. Teachers College
- Ouida Baxter Jenks, Virginia
Guidance
B.J. 1933, University of Texas
- William Bakos Laslo, District of Columbia
Elementary Education
B.S. 1953, Concord College
- Carole Helen Latker, Maryland
Secondary Education
B.S. 1962, University of Maryland
- William Gilbert Liggins, District of Columbia
Elementary Education
B.S. 1955, Elizabeth City State College
- Mary Gail Lovell, Virginia
Secondary Education
B.A. 1966, George Washington University
- Jane Alison Marotta, Virginia
Elementary Education
B.A. 1948, Syracuse University
- Shirley Philson McKinley, District of Columbia
Elementary Education
B.A. 1958, Bennett College, North Carolina
- Roberta Ladd Miley, Virginia
Reading
B.A. in Ed. 1957, George Washington University
- Mary Alice Mitchell, District of Columbia
Secondary Education
B.S. 1952, Alabama Agricultural and Mechanical College
- John Henry Newton, Maryland
Adult Education
B.A. 1964, George Washington University
- Jean Hideko Omori, Hawaii
Elementary Education
Ed.B. 1962, University of Hawaii
- Carl Leroy Peterson, Jr., Florida
Philosophy of Education
B.S. 1944, U.S. Military Academy
- Hattie Williams Phillips, District of Columbia
Elementary Education
B.A. 1959, D. C. Teachers College
- Donald Roland Redmiles, Maryland
Physical Education
B.S. 1953, University of Maryland
- Hugh William Reynolds, Maryland
Secondary Education
B.S. 1942, Manhattan College
- Miriam Smiley Sass, Maryland
Reading
B.A. in Ed. 1964, George Washington University
- Cecil Woodrow Shuler, Virginia
Adult Education
B.A. 1939, The Citadel
- Carole Ann Pollitt Simpson, Maryland
Guidance
B.A. 1964, University of Maryland
- William Richard Stovall, Virginia
Secondary Education
B.A. in Ed. 1964, University of Florida
- Carol Anne Surman, Virginia
Physical Education
B.A. 1958, San Jose State College
- Jean MacBryde Swenson, District of Columbia
Student Personnel Work in Higher Education
B.A. 1961, Washington University
- Henry Talamantez, Virginia
Physical Education
B.S. in P.E. 1956, Baylor University

Mark Alan Tannenbaum, New Jersey
 Student Personnel Work in Higher
 Education
 B.A. 1965, Rutgers, the State
 University
 James Wesson Tidwell, Maryland
 School Administration
 B.S. 1938, University of Tennessee
 George Fischer Viereck, Virginia
 Physical Education
 B.S. 1966, University of Maryland

George Raymond Watson, Jr., Virginia
 Physical Education
 B.A. 1966, Shepherd College
 Ronald Lorenzo Watson, Maryland
 Guidance
 B.S. in Ed. 1964, Cheyney State
 College
 Louise Stubblebine Young, Virginia
 Guidance
 B.A. 1964, American University

ADVANCED PROFESSIONAL CERTIFICATE

Caesar A. Ciansiosi, Virginia
 B.S. in Ed. 1952, Villanova University
 M.A. in Ed. 1955, George Washington
 University

DOCTOR OF EDUCATION

Milton Julian Bailey, Maryland
 Curriculum
 Dissertation: *Changes in Curriculum and Organization for Instruction in Se-
 lected Junior High Schools since 1957*
 B.S. in Ed. 1949, University of Minnesota, Duluth
 M.A. in Ed. 1955, George Washington University
 Allan I. Chotiner, Maryland
 Administration and Supervision
 Dissertation: *Data Processing in the Secondary Schools of the Suburban
 Washington Metropolitan Area*
 B.A. 1937, Pennsylvania State University
 Ed.M. 1941, University of Pittsburgh
 Mary Catherine Brierton Curry, Maryland
 Teacher Education
 Dissertation: *The Status and Working Relationships of Substitute Teachers in
 the Public Schools of Montgomery County, Maryland*
 B.S. 1942, State University of New York at Albany
 M.A. in Ed. 1950, George Washington University
 Dean Lester Des Roches, Pennsylvania
 Guidance and Counseling
 Dissertation: *Perceptions of Guidance Personnel Concerning Selected Fron-
 tiers in Guidance, and Their Role in Counselor Training*
 Ed.B. 1956, Plymouth State College
 M.A. in Ed. 1964, George Washington University
 William Belven Ellinger, Maryland
 Administration and Supervision
 Dissertation: *A Study of the Procedures Used to Evaluate Professional School
 Personnel in the Public Schools of the State of Maryland*
 B.S. in Ed. 1955, Pennsylvania State College, Bloomsburg
 M.A. in Ed. 1957, George Washington University
 Robert Emit McNelis, Maryland
 Administration and Supervision
 Dissertation: *An Investigation of Parents' Opinions, Attitudes, and Knowl-
 edge of Selected Aspects of the Public Schools of St. Mary's County, Mary-
 land*
 B.S. 1954, Pennsylvania State College, West Chester
 M.A. in Ed. 1961, George Washington University

George Bell Thomas, Maryland

Curriculum

Dissertation: *A Status Study of Business Education Programs to Determine the Extent of Economic Education Offered in Secondary Schools*

B.S. 1952, South Carolina State College

M.A. 1960, American University

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

Student Marshal: Douglass Dunsmoor Getchell, Jr.

BACHELOR OF BUSINESS ADMINISTRATION

Robert Sidney Arthur, Virginia
Business Administration

William Henry Carter, District of
Columbia

Business Administration
Damrong Chavanakunakorn, Thailand
International Business

Kai-Fook Felix Chin, Illinois

Business Administration
Donald Everett Cundiff, Virginia
Accounting

James Carl Curto, Maryland
Business Administration

Leonard Ernest Doyon, Rhode Island
Business Administration

Robert Lawrence Fink, New York
Business Administration

Douglass Dunsmoor Getchell, Jr., Illinois
Business Administration

Kenneth Byron Healey, Virginia
Accounting

Jonathan Frederic Johnson, Minnesota
Business Administration

Julian Harold Kasten, Maryland
Business Administration

Jack Scott Kenyon, Oklahoma
Business Administration

John Edward Kirby, New York
Business Administration

Robert Leslie Kirby, Jr., Virginia
Accounting

Daniel Gintoy Lee, District of Columbia
Accounting

Carl Richard Miller, Virginia
Accounting

Marshall Dean Nielsen, Wisconsin
Business Administration

Thomas Albert Rota, District of
Columbia

Business Administration
John Rudolph Stalick, Maryland
Accounting

Victor Arthur Swindall, Washington
Business Administration

Frederick John von Batchelder, Maryland
Business Administration

Dave Henry Watts, Virginia
Business Administration

James Scott Wingo, District of Columbia
International Business

MASTER OF ARTS

James Milton Dennis, Florida

Governmental Administration

B.S. 1962, U.S. Naval Postgraduate
School

MASTER OF ARTS IN GOVERNMENT

Joseph Stephen Browder, Virginia
Public Administration

B.A. 1966, Bridgewater College

Robert Nicholas Sankovich, Montana
Public Administration

B.A. 1962, University of Montana

Edward Ayers Steffee, Virginia
Public Administration

B.A. 1961, Thiel College

Eddie Mac Young, Virginia
Public Administration

B.S. in F.S. 1963, Georgetown
University

MASTER OF BUSINESS ADMINISTRATION

- Jeffrey Winfield Baldwin, New York
Health Care Administration
B.S. 1965, Allegheny College
- Gary Michael Barrett, Maryland
Business Administration
B.S. in E.E. 1961, Drexel Institute of Technology
- John Peter Bassler, Ohio
Business Administration
B.A. 1962, Brown University
- George William Blank, New Jersey
Business Administration
B.I.E. 1961, New York University
- Dennis Earl Cole, Illinois
Health Care Administration
B.S. in Phar. 1963, University of Illinois
- Robert Stephen Conroy, Illinois
Business Administration
B.S. 1954, University of Maryland
- Richard Byers Edgar, Maryland
Accounting
B.A. 1959, Duke University
- Marion Asbury Eggleton, Indiana
Business Administration
B.S. 1957, M.S. 1958, Purdue University
- John Anthony Gillcrist, Florida
Business Administration
B.S. 1944, U.S. Naval Academy
- Thomas David Granger, Connecticut
International Business
B.S. 1963, Boston College
B.F.T. 1965, American Institute for Foreign Trade
- Stuart Alan Greene, New York
Health Care Administration
B.A. 1963, New York University
- Bruce Lee Hennessy, Ohio
Business Administration
B.B.A. 1962, Cleveland State University
- Thomas Owen Jones, Jr., Virginia
Business Administration
B.S. in B.A. 1966, University of Southwestern Louisiana
- William Braun Jones, Jr., Virginia
Business Administration
B.B.A. 1967, George Washington University
- Charles Changwon Kim, Korea
International Business
B.S. 1965, New York University
- John J. Lamb, District of Columbia
Business Administration
B.S. 1956, University of Maryland
- Arthur Lowe III, Florida
Business Administration
B.B.A. 1963, George Washington University
- James Joseph McBirney, Massachusetts
International Business
B.A. 1963, University of Connecticut
- Edgar John Mixan, Maryland
Business Administration
B.S. 1955, Marquette University
- Melba Winnonah Odom, District of Columbia
Accounting
B.A. 1962, Hampton Institute
- Archibald Alexander Owen III, South Carolina
Business Administration
B.S. in Ch.E. 1954, Bucknell University
- Albert Benner Paul, Georgia
Business Administration
B.A. 1951, Duke University
- Charles Leonard Phillips, Virginia
Business Administration
B.A. 1949, Cornell University
- Richard Ellsworth Pugh, New York
Health Care Administration
B.A. 1965, Ithaca College
- Stephen Severance Rhoades, Maryland
Business Administration
B.A. 1958, Harvard University
- Walter Parker Robinson, Jr., District of Columbia
Business Administration
B.S. 1941, U.S. Naval Academy
- M.A. 1960, Georgetown University
- Tadashi Sekiguchi, Japan
International Business
B.A. 1964, Waseda University, Japan
- Bertrand Dean Smith, Pennsylvania
Business Administration
B.S. 1953, U.S. Naval Academy
- Carl Edward Smith, Maryland
Business Administration
B.S. 1955, Wilkes College
- Quinn Smith, South Carolina
Business Administration
B.S. 1951, Limestone College
- David Samuel Stern, Maryland
Business Administration
B.S. 1948, University of Pittsburgh

Jesus Gonzales Tirona, Philippines
International Business
B.A. 1960, Ateneo De Manila
University, Philippines
Edward James Tittle, Connecticut
Business Administration
B.S. 1964, University of Pennsylvania
Claude Andrew Trombly, Vermont
Business Administration
B.A. 1951, St. Michael's College
Robert Nabors Tyson, Virginia
Business Administration
B.S. 1934, U.S. Military Academy

Christopher McPhee Warner, Washington
Health Care Administration
B.S. 1965, University of Washington
Christopher Harris Williams III, Florida
Business Administration
B.A. 1965, University of Virginia
Robert Marshall Winter, Michigan
Business Administration
B.A. 1964, Western Michigan
University

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

Rupert Brooke, Virginia
B.S. 1946, U.S. Naval Academy
B.S. 1954, U.S. Naval Postgraduate
School
John Alexander Ferguson, South Dakota
B.A. 1933, Carleton College
David Hillary Gilbert, Maryland
B.A. 1950, Harvard University
LL.B. 1958, University of Maryland
Daniel Morris Kelly, Virginia
B.C.E. 1947, Cornell University
LL.B. 1952, Georgetown University
Richard James Mersch, Virginia
B.S. in I.E. 1958, Illinois Institute
of Technology
Alva Lionel Phillips, Jr., Virginia
B.S. 1951, Georgia Institute of
Technology
Benjamin Fred Roll, California
B.S. in Ed. 1960, Southern State
College, South Dakota

Dorrence O'Neil Sandfort, Florida
B.A. 1954, University of Southern
California
Emory Robinson Sellers, Jr., Virginia
B.A. 1967, Elon College
Robert Duane Singel, Virginia
B.A. 1942, University of Wisconsin
Robin Clark Smith, Virginia
B.A. 1962, Pennsylvania State
University
John Vincent Stroble, Alabama
B.S. in M.E. 1951, Carnegie Institute
of Technology
Ed.M. 1960, Bowling Green State
University
Carl William Thompson III, Delaware
B.M.E. 1964, University of Delaware
Addison McClure Williams, Jr., Missouri
B.S. 1956, Lincoln University, Missouri
Richard VanNorden Wilson, Virginia
B.A. 1960, University of Minnesota

MASTER OF SCIENCE IN FINANCIAL MANAGEMENT

Joseph Henry Bauernfeind, Florida
B.S. (S.S.) 1954, Georgetown
University
Frank Reed Berkheimer, Pennsylvania
B.S. 1954, U.S. Naval Academy
B.S. in E.E. 1962, U.S. Naval
Postgraduate School
Spencer Marion Bracey, South Carolina
B.S. in Engr. 1949, South Carolina
State College
Marjorie Mary Daly, Virginia
B.A. in Govt. 1948, George Washington
University
Edwin Curtis Dodd, California
B.S. 1956, University of the Pacific
Stanley John Haddock, Virginia
B.S. 1958, University of Scranton

Jack Edward Hobbs, Virginia
B.I.E. 1962, Ohio State University
Horace Ellsworth Knapp, Jr., Colorado
B.A. 1940, University of Denver
Thomas Barry Rhoads, Maryland
B.A. 1963, Ursinus College
Donald Lee Sherman, California
B.S. 1965, University of California,
Berkeley
Clay Royal Simon, Maryland
B.S. 1959, Yale University
George Wallace Speer, Maryland
B.S. 1952, Maryland State College,
Towson
Roger de Boucherville Taillon, Virginia
B.S. 1951, Fordham University
Constantine Xintas, Maryland
B.S. 1965, Johns Hopkins University

MASTER OF SCIENCE IN GOVERNMENTAL ADMINISTRATION

- Allen Edwin Anderson, Virginia
B.S. 1966, Sophia University, Japan
- John Joseph Boland, Maryland
B.E.E. 1965, Gannon College
- Gregory John Cavanagh, Virginia
B.A. 1956, Oklahoma State University
of Agriculture and Applied Science
- Stephen Alvin Finnerty, Maryland
B.S. 1960, University of Baltimore
- William Lloyd Fromm, Maryland
B.S. 1962, Loyola College
- Donald Eugene Johnson, Virginia
B.S. in E.E. 1962, Tennessee
Technological University
- Clarence Peterson, Maryland
B.S. 1952, Wayne State University
- Daniel Edward Shaughnessy, Virginia
B.S. 1962, John Carroll University
- Harold Rudolph Sims, Tennessee
B.A. 1957, Southern University and
Agricultural and Mechanical College

MASTER OF SCIENCE IN PERSONNEL ADMINISTRATION

- Frederick Holman Antil, Maryland
B.S. 1955, Cornell University
- Edward Stanley Broach, Jr., Virginia
B.B.A. 1963, Old Dominion College
- Basil Woodward Brown, Maryland
B.S. 1964, Loyola College
- Malcolm Pat Clark, Virginia
B.S. 1963, Murray State University
- John Lodge Coffin, Maryland
B.S. 1962, University of Maryland
- Jack Campbell Davis, Virginia
B.A. in Ed. 1956, Northeastern
State College
- Robert James Dompka, Maryland
B.S. 1949, University of Pittsburgh
- Conrad Leslie Duncan, New York
B.S. 1958, Long Island University
- George Joseph Ertlmeier, New York
B.S. 1954, U.S. Naval Academy
- Arthur Estes, Jr., Kentucky
B.A. 1963, U.S. Naval Postgraduate
School
- William Louis Fitch, Virginia
B.A. 1950, Washington State
University
- Andrew Jake Grogard, Maryland
B.S. 1957, Sophia University, Japan
- William Ronald Harman, Maryland
B.A. 1960, Western Maryland College
- Allan Joel Hirshey, Maryland
B.A. 1961, American University
- John Thomas Hodgkinson, Rhode Island
B.A. 1955, Bates College
- David Timothy Hottel, South Carolina
B.A. 1955, Furman University
- George Elbert Irish, Tennessee
B.S. 1950, U.S. Naval Academy
- Alexander Law Kivlen, Pennsylvania
B.S. 1950, U.S. Naval Academy
- Karl Ernest Kuehner, Washington
B.A. 1956, University of Washington
- Hugh Hardin Lowery, New York
B.S. 1944, U.S. Naval Academy
- John Edward Majesky, West Virginia
B.S. 1949, U.S. Naval Academy
- Donald James McAdams, Colorado
B.S. 1953, U.S. Naval Academy
- Kenneth Marion McAlhany, Maryland
B.S. in Ind.Mgt. 1963, Clemson
University
- Robert Francis McCullagh, New York
B.A. 1965, George Washington
University
- Samuel Littler Metcalfe, Jr., Connecticut
B.S. 1951, Fordham University
- Frank Herbert Mitchell, Jr., Maryland
B.S. 1953, U.S. Naval Academy
- Marshall Wilson Murphy, Michigan
B.S. in F.S. 1961, Georgetown
University
- Alan Lawrence Orr, Michigan
B.S. 1960, U.S. Naval Academy
- James Sherman Penhallegon, Maryland
B.S. 1942, Northwestern University
- Louis Joseph Reilly, Florida
B.S. 1940, University of Notre Dame
- Louis Anthony Ruberton, Virginia
B.S. 1963, University of Maryland
- Reuben Nathan Salada, Pennsylvania
B.S. 1936, Lock Haven State College
- Ivan Lewis Slavich, Jr., California
B.S. 1951, University of San Francisco
- Floryan Ludwig Soberski, Illinois
B.S. 1954, Purdue University
- Mati Tammaru, Maryland
B.A. 1959, Colgate University
- Esteban Unpingco Torres, Guam
B.B.A. 1965, George Washington
University
- John Nathan Trudell, Maryland
B.A. 1961, University of Maryland

William Hamden Turner, Virginia
B.S. 1951, Virginia Polytechnic
Institute

Jack Orville Walker, Texas
B.J. 1954, University of Texas

James Gilmore Ware, Jr., Virginia
B.S. in M.E. 1962, Virginia Polytechnic
Institute

Carl Owen Weisiger, New Jersey

B.S. 1962, Grove City College

Robert Eden Wolfe, Maryland

B.S. in Mil.Std. 1965, University of
Maryland

MASTER OF SCIENCE IN PUBLIC ADMINISTRATION

Jack Madison Bennett, Virginia
B.C.S. 1935, Drake University

Hymen Joseph Doben, Maryland
B.A. 1936, M.A. 1942, Washington
University

Paul Adrian Haber, Maryland
B.A. 1941, M.D. 1949, University
of Texas
M.A. 1942, Columbia University

Samuel Brown Jolly, Jr., North
Carolina

B.A. in Ed. 1952, University of
North Carolina

John A. McIntyre, Jr., Virginia

B.A. 1956, University of Pittsburgh

William Alfred Salmond, Maryland

B.S. in C.E. 1948, Lehigh University

Lyle Nelson Warren, Virginia

B.S. in Ed. 1936, M.S. in Ed. 1939,
Drake University

DOCTOR OF BUSINESS ADMINISTRATION

Dorothy May Harms, Virginia

Business Administration

Dissertation: *An Analysis of the U.S. Voluntary Restraint Program: Its Effect
on U.S. Balance of Payments and Private U.S. Industry*

B.S. 1950, New York University

M.B.A. 1962, George Washington University

John Harry Lauck, Virginia

Business Administration

Dissertation: *An Appraisal of the Experience under the Retired Serviceman's
Family Protection Plan (Formerly the Uniformed Services Contingency Op-
tion Act): 1953-1966*

B.S. in B.A. 1947, University of Notre Dame

M.B.A. 1963, George Washington University

George Champion Ruffin, Jr., Virginia

Business Administration

Dissertation: *Depreciation Allowances as a Factor in Asset Valuation*

B.S. 1934, U.S. Naval Academy

M.A. 1961, George Washington University

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Student Marshal: George Donald Holliday

BACHELOR OF ARTS

Amalia Dobrzinsky, Colombia

International Affairs

George Donald Holliday, South Carolina

International Affairs

Laurence Ford Lane, Connecticut

Public Affairs

Edward John McManus, Jr., District

of Columbia

International Affairs

Donald Pavony, Virginia
Public Affairs

Terry Ellen Rhodes, New York
International Affairs

Mary Vaughan Stroup, Florida
International Affairs

James William Wilkes, District of
Columbia

International Affairs

MASTER OF ARTS

- John Smith Behlke, District of
Columbia
International Affairs
B.A. 1963, Brown University
- Richard Howard Bomberger, District
of Columbia
International Affairs
B.A. 1963, American University at
Beirut, Lebanon
- Norman Ames Brown, Virginia
International Affairs
B.A. 1966, Washington State
University
- Robert Louis Carpenter, Missouri
International Affairs
B.A. 1965, Culver-Stockton College
- Hugo Montgomery Churchill, Maryland
Economic Policy
B.A. 1961, Swarthmore College
- Bartholomew Joseph Crivella, Maryland
Public Affairs
B.A. in Govt. 1960, George
Washington University
- Philip Irwin Estermann, California
International Affairs
B.A. 1965, University of Redlands
- Leo Andrew Guenther, Pennsylvania
Public Affairs
B.Gen.Ed. 1965, Municipal University
of Omaha
- William Holima Kallon, Sierra Leone
International Affairs
B.S. 1965, Hampton Institute
- Patricia Florence Logie, Washington
International Affairs
B.A. 1951, Stanford University
- George Nehrebeckyj, Maryland
International Affairs
B.A. 1963, University of Michigan
- John Harris Rutherford, Illinois
International Affairs
B.A. 1966, Washington and Lee
University
- Valentina Michailovna Tarchov,
Venezuela
International Affairs
B.A. 1963, University of California,
Los Angeles
- Larry Sherman Toulouse, Missouri
International Affairs
B.A. 1964, Washburn University of
Topeka
- Carroll Robbins Wetzel, Jr.,
Pennsylvania
International Affairs
B.A. 1965, Stanford University
- Carol Elizabeth Wilder, Alabama
International Affairs
B.A. 1965, University of Alabama

MASTER OF SCIENCE IN INTERNATIONAL AFFAIRS

- Harold Winfield Christian, Jr., New
Mexico
B.S. 1952, Air Force Institute of
Technology
- Stoddard Gregg Cortelyou, California
B.S. 1940, University of California,
Los Angeles
- Jack Jones Hinman III, Iowa
B.S. 1940, U.S. Military Academy
M.S. 1946, Massachusetts Institute
of Technology
- Paul Eugene Hutchinson, Ohio
B.A. 1957, George Washington
University
- Austin Francis McGovern, Pennsylvania
B.A. 1964, George Washington
University
- Daniel Phillip Riley, New York
B.A. 1959, Tufts University
- William Kenneth Skaer, Texas
B.S. 1938, U.S. Military Academy
- Warren Andrew Skon, Minnesota
B.A. 1966, George Washington
University

COLLEGE OF GENERAL STUDIES

Student Marshal: James Edward De Witt

ASSOCIATE IN ARTS

- David Franklin Braddy, Virginia
Accounting
- Allen Wayne Lloyd, Maryland
- Mary Frost Rowe, Virginia
- Dominic Jerry Rubino, Maryland

ASSOCIATE IN SECRETARIAL ADMINISTRATION

Doris Bigham Donald, Maryland

BACHELOR OF ARTS

James William Abraham, Virginia	Hobert Lee Kiger, Georgia
Social Sciences	Social Sciences
Franklin Steward Bergen, New Jersey	Herbert Thomas King, Florida
Social Sciences	Social Sciences
Hortense Mae Boutell, District of	John Robert Knight, Virginia
Columbia	Social Sciences
Languages and Literatures	Julian Strong Lake, Virginia
James Edward De Witt, Maine	Social Sciences
Social Sciences	Charles Paul Muckenthaler, Virginia
Aleksander Einseln, New Jersey	Social Sciences
Social Sciences	Dewey Slosson Pegler, Maryland
David Edward Farrell, Virginia	Social Sciences
Social Sciences	Robert Birney Pond, Virginia
Harry E. Gerhard, New Jersey	Social Sciences
Social Sciences	William Hoyle Ragsdale, Jr., Maryland
Gordon Larimore Gray, Jr., Florida	Natural Sciences
Social Sciences	Sanford Joseph Stone, New York
Verne William Hagstrom, Minnesota	Social Sciences
Social Sciences	Jerrold Lynn West, Maryland
Paul Rush Horne, Jr., District of	Natural Sciences
Columbia	Lucia Ruth Zurawski, District of
Social Sciences	Columbia
	Social Sciences

BACHELOR OF SCIENCE IN GENERAL STUDIES

John Anthony Boyle, Jr., California	Thomas Beckwith Russell, Jr., Missouri
Thomas Jeremiah Delaney, California	Floyd Dean Saine, Sr., Oklahoma
John Eugene Kennedy, Florida	Warren Hanson Sells, Louisiana
Orlin Neil Putman, California	Carlos Bryan Stafford, California
George Benson Riley, Maryland	

BACHELOR OF SCIENCE IN GEODETIC AND CARTOGRAPHIC SCIENCE

Val Edward Sellers, Virginia

Annual Commencement, June 2, 1968

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Student Marshal: Cecilia Esmond Mansfield Bullard

ASSOCIATE IN ARTS

Peter Charles Gamache, Maine
Eleanor Jane Holsopple, Virginia

Michele Terry McDonald, Pennsylvania

BACHELOR OF ARTS

Laura Judith Abel, New York
English Literature
Leslie Morton Adkins, New York
Political Science
Margaret Priscilla Alden, Virginia
English Literature
(With Distinction, Special Honors)
Nancy Louise Alessi, Maryland
Sociology
Gail Elliot Allinson, Pennsylvania
English Literature
Steven Allen Ames, New York
Sociology
Gayle Alice Anderson, Virginia
Russian Language and Literature
Diane Lynn Arkin, New York
Art History and Theory
Mary Louise Asplund, Virginia
Sociology
Michael Robert Aulicino, Connecticut
History
Judith Axelrod, Pennsylvania
Psychology
Nancy Coe Bailey, Virginia
Journalism
Bonnie Jean Balenson, Maryland
Political Science
William Hazard Bancroft, Jr., California
History
Susan Hazel Bane, Maryland
Zoology
Stephanie Lee Barash, New York
Psychology
Anita Joyce Barnes, Idaho
Psychology
Barbara Beatty Barnes, Virginia
Art History and Theory

Sheryl Ann Becker, New York
Speech Pathology and Audiology
Susanne Becker, California
Political Science
Loran William Behrens, District of
Columbia
Journalism
Katherine Marie Bell, New York
English Literature
Steven Ira Bellman, New Jersey
Sociology
John Richard Bellush, Jr., New Jersey
Political Science
Camille Ruth Benhayon, New Jersey
Sociology
Gail Marsha Benkin, New Jersey
Psychology
Peter Jay Berman, New York
Psychology
Betty Ann Bern, Virginia
History
Barbara Hough Billmyer, Rhode Island
English Literature
Richard Marc Biren, New York
Journalism
Susan Anne Blair, Massachusetts
American Thought and Civilization
Thomas Alan Blair, Maryland
Spanish Language and Literature
Christy Lancaster Blaisdell, Virginia
Art History and Theory
Ronald David Blaustein, Maryland
History
Susan Douglass Bliss, Maryland
Art History and Theory
Casper Joel Block, Maryland
French Language and Literature

- Seymour Herahal Block, Pennsylvania
Psychology
- Robert Alan Bloom, New Jersey
Zoology
- Lucy Downing Blundon, Arizona
French Language and Literature
- Lewis Bogaty, New Jersey
English Literature
(With Distinction)
- Gerald John Bohus, Ohio
Economics
- Jay Ira Bomze, Pennsylvania
Political Science
- Margaret Stanley Boone, Virginia
Biology
- Catherine Elizabeth Bowlus, District of
Columbia
Economics
- Edwin Lowell Brachman, Florida
Political Science
- Rickcord Ann Bradley, Florida
Germanic Languages and Literatures
- William A. Bragman, New York
History
- Judith Anne Brandeberry, Ohio
Fine Arts
- Berl Martin Brechner, Florida
Journalism
- Paula Marie Breen, District of Columbia
History (Special Honors)
- Judith Ann Breit, Virginia
Economics (With Distinction,
Special Honors)
- Linda Marie Brick, District of Columbia
American Thought and Civilization
(With Distinction, Special Honors)
- William Leander Brobst, Ohio
Political Science
- Karen Elizabeth Brody, Virginia
English Literature
- Geoffrey John Hatton Brown,
District of Columbia
Mathematical Statistics
- Helen De Coninck Brown, Virginia
Art History and Theory
- Santo Joseph Bucolo, District of
Columbia
French Language and Literature
- Cecilia Esmond Mansfield Bullard,
Virginia
Art History and Theory
(With Distinction, Special Honors)
- Steffanie Hanor Burgevin, Ohio
Political Science
- Allan Edward Burt, Maryland
Geography
- Patricia Ann Ellen Cahill, Virginia
English Literature (Special Honors)
- Dolores Ann Calisto, District of
Columbia
French Language and Literature
- Dorothy Enos Campbell, New York
English Literature
- Christina Blanding Castle, New York
Sociology
- Eric Bryon Chaikin, New Jersey
History
- Joy Suzanne Chambers, Alabama
Economics
- Mary Ann Chinn, Virginia
Dramatic Art (Special Honors)
- Ronald Michael Clancy, Pennsylvania
Journalism
- Janice Lynne Coe, New Jersey
Psychology
- Ernest Maxwell Cohen, District of
Columbia
Speech
- Phyllis Jean Cohen, Delaware
Spanish Language and Literature
- Ronald Cohen, New York
History
- Eugene Joseph Coletti, New York
Political Science
- Robert Boston Colgin, Delaware
History
- Camille Gouverneur Collart, Rhode
Island
Speech Pathology and Audiology
(Special Honors)
- Karen Collins, Maryland
French Language and Literature
- Frank Harry Columbus, Jr., Maryland
Russian Language and Literature
- Jennifer Gail Connor, New Jersey
Fine Arts
- Martha Camp Conrad, District of
Columbia
English Literature
- Frank Gordon Cooper, Massachusetts
Political Science
- Peggy Ayn Cooper, Alabama
Political Science
- Laurel Sue Cowan, Pennsylvania
Speech Pathology and Audiology
- Albert Binns Cox II, Virginia
Economics
- John Barry Cox, District of Columbia
History
- Maureen Lee Craig, Maryland
Speech Pathology and Audiology
(Special Honors)

- Minrose Lankford Crouch, Virginia
Sociology
- Phoebe Frisk Cummins, Connecticut
Art History and Theory
- Melissa Elene Cunha, Connecticut
Sociology
- Julie Delaplaine Danforth, Massachusetts
American Thought and Civilization
- Roberta Danzansky, District of
Columbia
History
- Louise Martha Davies, Rhode Island
French Language and Literature
- James Spiro Dedes, Maryland
Psychology
- Adrian Joseph Delaney, Jr., Virginia
Anthropology
- John Edward Denbow, Pennsylvania
Journalism
- Paul Martin Diamond, New York
Journalism
- Sarah Ann Dickinson, Virginia
Political Science
- Margaret Diggs, Virginia
Fine Arts
- Lowell Stuart Ditzen, District of
Columbia
American Thought and Civilization
- Winifred Elaine Donovan, New Jersey
Psychology
- Jack Hirsh Dornier, Maryland
Art History and Theory
- Gary Richard Dornfeld, New Jersey
Psychology
- Robert Martin Doulé, New York
Political Science
- Donna Elaine Downes, Maryland
Fine Arts
- Bonnie Lee Dry, Illinois
History
- Jessica Ann Dunsay, New York
Political Science
- Robert John Dworkoski, New Jersey
Political Science
- Bonnie Sheila Eisenberg, District of
Columbia
Psychology (With Distinction,
Special Honors)
- Jacqueline Elder, New York
Psychology (With Distinction)
- Robert Chadwick Elliott, Virginia
Political Science
- Philip Barry Epstein, Virginia
Psychology
- Nancy Jane Erlanger, New York
Sociology
- Selluk Ayse Esenbel, District of
Columbia
History
- Sue Ellen Ewart, Virginia
Spanish Language and Literature
- Toni Lee Falbo, Maryland
Psychology (With Distinction,
Special Honors)
- Marilyn Lee Feder, Pennsylvania
Fine Arts
- Lenore Langsdorf Fein, District of
Columbia
Philosophy
- Rhona Susan Feldman, Maryland
Political Science
- Elizabeth Lee Fellows, France
Sociology
- Pamela Anne Fenrich, District of
Columbia
Philosophy
- Jeanne Marie Ferdon, New York
Economics
- Jeremy Loftus Fergusson, Pennsylvania
English Literature
- Wendy Lynn Fields, New York
Sociology
- Paul Martin Fine, Maryland
Medicine
- Michael Brent Fingerhut, District of
Columbia
Economics
- Sheila Ann Fink, New York
Political Science
- Jack Marvin Firestone, Ohio
Music History and Literature
- Deborah Diamond Fisch, Virginia
Psychology
- Richard Eli Fish, New York
Sociology
- Theodore Victor Fishman, New Jersey
Political Science
- Susan Mann Floyd, Pennsylvania
Art History and Theory
- Mulbah Kwekwe Flumo, Liberia
Mathematical Statistics
- Ronald Joseph Fonte, Ohio
American Thought and Civilization
- Theodora Jane Forrest, New Jersey
Mathematics
- Frank Scott Forsyth, Virginia
American Thought and Civilization
- Vicki Jo Fowler, District of Columbia
Psychology
- Judith Ann Frankel, Missouri
American Thought and Civilization

Axel Ivan Freudmann, New York
 French Language and Literature
 Lawrence Frieman, New York
 Zoology
 Steven George Fryberger, Virginia
 English Literature
 Thomas William Furlow, Jr., Maryland
 Medicine (With Distinction)
 Renée Gaba, New York
 Speech Pathology and Audiology
 Jay Samuel Gaines, New York
 Psychology
 Robert Patrick Gallagher, Pennsylvania
 Political Science
 Steven Mark Gallant, New York
 Psychology
 Judith Mercer Gappa, Virginia
 Music History and Literature
 Larry Garfinkel, District of Columbia
 Journalism
 Marsha Seena Gary, New York
 Political Science
 Barbara Jean Gehrke, Virginia
 French Language and Literature
 (With Distinction)
 Cynthia Harriet Gerst, District of
 Columbia
 Psychology
 Donna Phyllis Glaser, New York
 Speech Pathology and Audiology
 Steven Bruce Gold, New York
 Psychology
 Richard Ira Goldberg, District of
 Columbia
 Anthropology
 Edward Manuel Goldman, New York
 Economics
 Susan Barbara Goldsmith, New York
 Sociology
 Margaret Ann Gorecki, Virginia
 History
 Michael David Grabow, New Jersey
 Sociology
 Margaret Elizabeth Grady, Pennsylvania
 Journalism
 Mary Frances Shaughnessy Green,
 Pennsylvania
 American Thought and Civilization
 Charlotte Ann Greenawalt, Pennsylvania
 Biology
 Paul Roy Greenberg, New York
 Psychology
 Robert Michael Greenfield, District of
 Columbia
 Economics
 Marilyn Joyce Greger, Virginia
 Sociology

Helene Cynthia Grill, New Jersey
 Speech Pathology and Audiology
 Joseph Lyons Gunnels, Virginia
 American Thought and Civilization
 Mary Phyllis Gunnels, Virginia
 American Thought and Civilization
 Mary Pauline Hagan, Virginia
 Russian Language and Literature
 Vicki Ann Hambro, Massachusetts
 English Literature
 Julia Vail Hammar, Pennsylvania
 Sociology
 Verna Elisabeth Hanes, Maryland
 Medicine
 Stanley Arthur Harmen, Massachusetts
 English Literature
 John Douglas Harris, Maryland
 Psychology
 Maria Anthony Harris, Maryland
 Speech Pathology and Audiology
 Robert Joseph Harris, Maryland
 Medicine (With Distinction)
 Juanita Akridge Hatcher, District of
 Columbia
 Spanish Language and Literature
 B.A. in B.A. 1949, University of
 Tampa
 Linda Bowers Haverfield, District of
 Columbia
 Art History and Theory
 Katherine Elizabeth Hawley, France
 French Language and Literature
 (With Distinction)
 Susan Elizabeth Hays, Virginia
 Speech Pathology and Audiology
 (Special Honors)
 Bonnie Lee Hedrich, Maryland
 Anthropology
 Brian Cecil Herman, District of
 Columbia
 Economics
 Mary Susan Herndon, Virginia
 Sociology
 Richard Knight Hester, Maryland
 Physics
 Susan Lynne Hilzenrath, New York
 Speech Pathology and Audiology
 Mary Christina Hines, Virginia
 French Language and Literature
 Philip Michael Hodges, Virginia
 Art History and Theory
 Richard Alan Hodson, California
 Psychology
 Carol Ann Hoeber, New York
 Political Science
 Mark Holbreich, New York
 American Thought and Civilization

- Leslie Holden, New York
Speech Pathology and Audiology
(Special Honors)
- Deborah Hollander, Maryland
Art History and Theory
- Marsha Davie Holliday, District of
Columbia
American Thought and Civilization
- Susan Jane Holt, District of Columbia
English Literature
- Katherine Nickels Hughes, Virginia
Sociology
- Sally Windust Iadarola, District of
Columbia
Political Science
- Tova Morris Indritz, Maryland
Sociology
- Lesley Pamela Irby, Maryland
English Literature
- Mark Henry Israel, New York
History
- Jane Ellen Jacobs, Connecticut
American Thought and Civilization
(Special Honors)
- Laurie Jeanne Jennings, Connecticut
Geology
- William Page Johnson, Virginia
Religion (Special Honors)
- Janet Virginia Johnstone, New Jersey
Art History and Theory
- Agatha Ernestine Jones, Virginia
American Thought and Civilization
- Jean Elizabeth Jones, Massachusetts
English Literature
- Mary Nell Jones, Virginia
Sociology
- Thomas Oliver Jones, Maryland
English Literature
- David Charles Jordan, New Jersey
Economics
- Sherry Elizabeth Joslin, Pennsylvania
French Language and Literature
- Cathy Ann Juall, New Jersey
Sociology
- Michael Lee Judy, Kentucky
Political Science
- Nicola Juricak, Missouri
English Literature
- Dorothy Louise Kagan, Connecticut
Anthropology
- Elizabeth Jackson Kamp, Pennsylvania
Art History and Theory
- Valerie Jane Karr, New York
Sociology
- Clifford Arthur Kary, New York
Psychology
- Risa Pearl Kaufman, New York
Journalism
- Robin Kaye, New York
Political Science
- Rory James Kelly, New Jersey
English Literature
- James Laurence Kent, Maryland
Political Science
- William Irwin Kent, Jr., Pennsylvania
Fine Arts
- Peggy Lynn Kerr, Texas
American Thought and Civilization
- Barbara Ruth Kibler, Tennessee
Fine Arts
- Harold Kent Kidwell, Virginia
Political Science
- Stuart Lee Kiehl, New York
American Thought and Civilization
- Roger Hartley Kimmel, Virginia
History
- Richard Frank Kingham, Virginia
Political Science
- Bruce Edmund Kitzmeyer, Massachusetts
English Literature
- Susan Conway Knight, District of
Columbia
English Literature
- Marlene Kobre, Virginia
American Thought and Civilization
(With Distinction, Special Honors)
- Joel Edward Kubicki, Pennsylvania
Art History and Theory
- Jill Kulick, New York
Sociology
- Claire Lee Kummer, Florida
Economics
- Christina Johnson Lamb, District of
Columbia
Dramatic Art
- Harry Alan Lando, Maryland
Psychology (With Distinction,
Special Honors)
- Karen Therese Langston, District of
Columbia
Sociology
- Micheline Mary Laws, Pennsylvania
Sociology
- Linda Anne LeBlanc, Maryland
Sociology
- Caroline Lebowitz, Virginia
Psychology (Special Honors)
- Jill Arlene Lederman, New York
Sociology
- Cheryl Debra Lee, Virginia
Sociology
- Michael Harold Leeds, New York
Political Science (With Distinction)

- Frances Lefkowitz, New Jersey
 History
 Judith Ann Lehnowsky, Pennsylvania
 Art History and Theory
 Peter DeRyck Lent, Maryland
 Political Science
 Barry Edward Levich, Iowa
 English Literature
 Arnold Glenn Levy, Delaware
 Medicine (With Distinction)
 Lynne Grier Lewis, New Jersey
 Anthropology
 Lowell Earl Lieberstein, Illinois
 Political Science (with Distinction)
 Angela Chi-Chang Ling, District of
 Columbia
 Fine Arts
 Mariel Huber Lipscomb, Virginia
 English Literature
 Julia Lynn Little, Florida
 Anthropology
 Linda Nancy Lodge, Pennsylvania
 Sociology
 Robert Stanley London, Maryland
 Sociology
 Barbara Anne Lubin, Maryland
 Anthropology
 Laurel Jean Lundahl, Illinois
 Biology
 Ronald Anne MacDonald, District of
 Columbia
 Spanish Language and Literature
 Melville Rothschild Mackler, Illinois
 Dramatic Art (Special Honors)
 Phyllis Arline Macmillan, New York
 French Language and Literature
 Judy Pauline Mannes, Maryland
 Psychology
 Janice Mannino, Pennsylvania
 Psychology
 Grace Hamilton Manov, Virginia
 Psychology
 Judith Anne Marchyn, Brazil
 Sociology
 Paul Marion Marcus, District of
 Columbia
 Geography
 Carolyn Jane Margolis, Pennsylvania
 Art History and Theory
 David Jay Markman, New York
 Political Science
 Nancy Lee Marsden, District of
 Columbia
 Mathematics
 Patricia Marshall, District of Columbia
 Religion
 Bonnie Lynn Maslin, New York
 Zoology
 Deborah Beth May, New York
 Art History and Theory
 Andrew Mark Mayer, New York
 History
 Evelyn Lee Mayne, Virginia
 Sociology
 Justine Frances McClung, New York
 Art History and Theory
 Francis Collin McDonald, District of
 Columbia
 Anthropology
 Christine Ellen McGuire, District of
 Columbia
 Psychology
 Susan Meader McKenzie, Vermont
 Anthropology
 Lynda Kaye Medors, Ohio
 American Thought and Civilization
 (With Distinction, Special Honors)
 Stephen Edward Mermelstein, New Jersey
 Economics
 Robert Stephen Meyer, New York
 History
 Ellen Ruth Meyerheim, District of
 Columbia
 Spanish Language and Literature
 Faye Eileen Mickelson, District of
 Columbia
 Speech Pathology and Audiology
 (Special Honors)
 Michelle Milikowsky, Connecticut
 French Language and Literature
 (Special Honors)
 Gregory Blankinship Millard, Texas
 American Thought and Civilization
 Keith Lee Miller, New York
 American Thought and Civilization
 Marcia Jean Miller, California
 Anthropology (With Distinction)
 Nancy Bradley Miller, Georgia
 English Literature
 Edward Suttle Mohn, District of
 Columbia
 Psychology
 Laura Cathrine Monahan, New York
 American Thought and Civilization
 William Lewis Monroe, District of
 Columbia
 Mathematical Statistics
 Ruth Morton, Ohio
 English Literature
 Lynda Marie Moss, Maryland
 Anthropology
 Eric Charles Muller, Maryland
 Geography
 Christine Louise Murphy, Kansas
 Political Science (With Distinction)

- David Charles Murray, Massachusetts
Political Science
- Weldon Alan Nelson, Wisconsin
Political Science
- Patricia Leslie Nichols, Maryland
Sociology
- Donald Eugene Noble, Maryland
Chemistry
- Jeffrey Bruce Norman, Maryland
Political Science
- Sheldon Lawrence Nussbaum, District of Columbia
Mathematical Statistics
- Harriet Sara Odenheimer, Pennsylvania
Political Science
- Laurence Michael Onie, New York
Political Science
- Marilyn Gurney Ontell, New Jersey
Latin American Studies
- Christine Opal, Maryland
French Language and Literature
- Mary Francis Organ, Massachusetts
History
- Charles Nathan Ory, Texas
Economics
- Roy Terhune Otterbein, Ohio
Physics
- Sara Lynne Pace, Virginia
American Thought and Civilization
- Leon Papir, Virginia
Spanish Language and Literature
(With Distinction, Special Honors)
- Elsie Martha Paradies, Philippines
Fine Arts
- Michael Solin Parish, Massachusetts
Political Science
- Brenda Eileen Parker, District of Columbia
Mathematical Statistics
- Patricia Lewandowski Patton, Virginia
French Language and Literature
(Special Honors)
- Steven Paul Perlman, New York
Psychology
- Irene Harriet Philip, New Jersey
Anthropology
- Karen Joy Pholeric, Pennsylvania
Political Science
- Ann Denham Pimper, Maryland
Psychology (With Distinction)
- Julia Ann Plaska, Pennsylvania
Political Science
- Barbara Ann Polay, Virginia
Journalism (With Distinction, Special Honors)
- Jerilynn Irene Powell, Virginia
Russian Language and Literature
(With Distinction)
- Richard Bradley Price, District of Columbia
Sociology
- Stanley Owen Provus, Illinois
History
- Kathleen Anne Quinn, Massachusetts
Speech
- Linda Rabstein, Maryland
English Literature
- James Allan Rae, Jr., Virginia
Psychology
- Marian Lindsey Redela, Virginia
Philosophy
- Fay Oneal Redwine, Pennsylvania
Zoology
- David Alan Reed, New Jersey
History (With Distinction, Special Honors)
- Nancy Marlyn Reichley, District of Columbia
American Thought and Civilization
(With Distinction, Special Honors)
- Terry David Rich, District of Columbia
History
- Lenore Madeline Richman, New York
Sociology
- Susan Blyth Ricker, Pennsylvania
History
- John Lindsay Riddick, Virginia
History
- Marion Johnson Riddick, Virginia
History
- Susan Jane Riesel, New York
English Literature
- Kathleen Marie Riordan, Connecticut
Economics
- Linda Ann Risley, Pennsylvania
Economics
- Harvey Irwin Robins, New York
Sociology
- Karen Lynn Roby, District of Columbia
Psychology
- Sherry Dee Rockwell, District of Columbia
French Language and Literature
- Judith Deborah Rogoff, New York
Speech Pathology and Audiology
- Sarah Rogovin, Connecticut
Political Science
- Gertrude Weinsweig Rohrer, District of Columbia
Speech Pathology and Audiology

Gerald Howard Romansky, District of
Columbia
Anthropology
Richard James Rooney, Connecticut
American Thought and Civilization
Diane Strauss Rosenbaum, Kentucky
Sociology
Robert Lawrence Rosenberg, New Jersey
Medicine
Robyn Ann Ross, District of Columbia
Philosophy
Jane Mary Rossignoli, Rhode Island
English Literature
Renee Helene Royak, District of
Columbia
Anthropology
Nan Herron Ruben, Pennsylvania
Sociology (With Distinction)
Miriam Ruchwarger, Maryland
Political Science
Jessica Merle Rukin, District of
Columbia
Speech Pathology and Audiology
Kyle Runyon, Connecticut
English Literature
Thomas Wimer Ruth, Pennsylvania
Sociology
Richard Gary Sachs, New Jersey
Zoology
Cynthia Hollis Sack, Connecticut
Political Science
Timothy Allen Samolej, Virginia
Political Science
Jane Marcia Sanders, New Jersey
Journalism
Joan Anelle Sargent, Virginia
Political Science
David Alan Satter, Massachusetts
Anthropology
Barbara Ann Sautter, New Jersey
Political Science
John Robert Sawicki, New York
American Thought and Civilization
Richard John Scharer, New York
Political Science
Leslie Ann Schiller, Maryland
Psychology
Arlene Claudia Schmaier, New Jersey
Psychology
Steven Norman Schnoll, New Jersey
Sociology
Brian Martin Schulman, New York
Medicine (With Distinction)

Robert Joseph Schulman, Connecticut
Zoology
David Michael Seager, Maryland
Fine Arts (With Distinction)
Joanna Seaton, New Jersey
Sociology
Earl Ellison Shamwell, District of
Columbia
Political Science
Jenny Schulter Shapiro, Virginia
English Literature
(With Distinction, Special Honors)
Norman Holbrook Sheppard,
Pennsylvania
Art History and Theory
Hannah Jo Ann Shklar, New York
Art History and Theory
James Harold Shulman, Connecticut
Political Science
Jeffrey Roy Siegel, New Jersey
Political Science
Barbara Jean Silverman, District of
Columbia
Speech Pathology and Audiology
Richard Pitts Simons, District of
Columbia
History
Sondra Leigh Sims, District of Columbia
Spanish Language and Literature
Sandra Denny Skop, District of
Columbia
French Language and Literature
Carolyn Edwina Smith, Indiana
Philosophy
Elizabeth Ellen Smith, District of
Columbia
History
Jack David Smith, Jr., Virginia
Political Science
Robinson Bevin Smith, District of
Columbia
Sociology
Janice Sylvia Snow, Rhode Island
English Literature
Joseph John Snyder IV, Maryland
Anthropology
Erica Reynold Sommers, Pennsylvania
Sociology
Barbara Christine Sowers, Virginia
Political Science
Steven Marc Spector, District of
Columbia
Economics (Special Honors)

- Naomi Jane Spinrad, New York
Psychology
- Marsha Wendy Sprintz, District of
Columbia
American Thought and Civilization
- Barbara Ann Stanton, Ohio
Art History and Theory
- Nina Jane Stein, New York
French Language and Literature
- Linda Beth Steinman, District of
Columbia
Sociology
- Gwen Louise Stern, Illinois
Anthropology
- Judith Stern, New Jersey
Political Science
- Charles Glenn Stevens, District of
Columbia
Economics
- Marilyn Aleesa Stewart, District of
Columbia
Psychology (With Distinction,
Special Honors)
- Richard Myles Stower, New York
History
- Doreen Faye Strachman, Maryland
Psychology (Special Honors)
- Tobi Marlene Stypher, Maryland
Speech Pathology and Audiology
(Special Honors)
- Barry Richard Sude, New York
History
- Craig Frederick Sullivan, New Jersey
Economics
- Eileen Meryl Sussman, District of
Columbia
Sociology
- Samuel Carlyle Swaby, District of
Columbia
Zoology
- Diane Jane Swartz, Massachusetts
Spanish Language and Literature
(Special Honors)
- Robert Brian Swegart, Massachusetts
Psychology
- Robert Swenson, Connecticut
American Thought and Civilization
- Richard Joseph Taibi, New York
Psychology
- Peter Everett Tarlow, New Jersey
Spanish Language and Literature
- Paula Toni Tarnogorski, District of
Columbia
Speech Pathology and Audiology
- John Marvin Taves, Virginia
Psychology
- Elizabeth Anne Taylor, Massachusetts
History
- Keith Weller Taylor, District of
Columbia
History
- Robert Leo Tennant, Maryland
Psychology
- John Owen Thompson, Jr., Maryland
Political Science
- Patricia Ann Thompson, New York
Spanish Language and Literature
- Anne Catherine Thurston, District of
Columbia
Sociology
- Mahala Willard Tillinghast, Maryland
Music History and Literature
- Alexandra Ivanovna Tolstoy, District of
Columbia
Mathematics
- Mary Waterman Tompkins, Missouri
Political Science
- Linda Trent, Pennsylvania
French Language and Literature
- Joanne Elaine Tumolo, Virginia
English Literature
(With Distinction, Special Honors)
- Joanne Claire Turner, Oregon
Economics
- Margaret Anne Twiss, California
Speech
- William George Underhill, New Jersey
Mathematics
- Robert James Urban, Maryland
History
- Steven Cady Usher, Virginia
Latin American Studies
- Richard David Vail, District of
Columbia
Zoology
- Stephen Henry Van Devanter, Maryland
Medicine
- Eric Piet van Swol, Virginia
Geography
- Gunduz Yusuf Hatic Vassaf, Turkey
Psychology
- Georgia Louise Vavra, District of
Columbia
Fine Arts
- Paul Joseph Vella, New York
Political Science
- Pamela Page Verbrycke, District of
Columbia
Sociology
- Bonnie Jean Vermillion, Virginia
Sociology
- Amalia Susan Viquez, California
Psychology

Lesley Moore Vossen, District of
Columbia
English Literature
Ann Herrick Wallace, Virginia
Political Science
Laura May Waltz, District of Columbia
English Literature
(With Distinction, Special Honors)
Diana Rae Warthen, Maryland
Anthropology
Mary Campbell Watkins, District of
Columbia
Art History and Theory
(With Distinction)
Marcia Ann Weadon, Virginia
English Literature (Special Honors)
Dorothy Gaillard Weatherby, District of
Columbia
Journalism
Eric vanderDoes Weil, New York
History
William David Weinstein, New York
Anthropology
Elisabeth Lee Weintraub, New York
Sociology
Simma Weintraub, Maryland
Fine Arts
Kenneth Steven Weissblum, New York
Psychology
Charles Wender, New York
Political Science
Kurt Budd Wentz, Ohio
History
Diane Wynn Wexler, Connecticut
Journalism
John Stuart Whetzell, Jr., District of
Columbia
Economics
Allan Lee White, Massachusetts
Geography (Special Honors)
George Geza White, District of
Columbia
Economics
William Gregg Wilcove, New York
Psychology

David Francis Williams, Jr., Connecticut
History
Kathleen McNeal Williams, District of
Columbia
American Thought and Civilization
Caroline von Schrader Winslow, District
of Columbia
Sociology
Joan Trackston Winthrop, Massachusetts
Art History and Theory
Margaret Minda Wolf, New Jersey
Speech Pathology and Audiology
Merilee Ann Wolfson, Massachusetts
Speech Pathology and Audiology
Karen Suzanne Woods, Pennsylvania
Art History and Theory
Marshall Allan Worden, District of
Columbia
Geography (Special Honors)
Catherine Anne Wyllie, Virginia
English Literature
Warren Phillip Yarnell, Maryland
Political Science
William Robert Yelen, District of
Columbia
Psychology
Teresa Isabel Ysern, Panama
Mathematics
Mahmoud Abdul Zawawi, Maryland
Geography
Christiane Ingeborg Zeichner, District
of Columbia
Sociology
Eileen Rachel Zeitz, District of
Columbia
Sociology
Barbara Linda Zieper, New Jersey
Political Science (With Distinction)
James Waaser Ziglar, Virginia
Political Science
Linda Kathleen Ziglar, Virginia
Mathematics (With Distinction)
Adele Kay Zimmermann, District of
Columbia
Mathematical Statistics

BACHELOR OF SCIENCE

Sherrill Lynn Adams, Colorado
Zoology
Edward Francis Angevine, District of
Columbia
Mathematics

Philip Joseph Aruscavage, Pennsylvania
Chemistry
Susan Andrea Bazinet, Rhode Island
Biology
Kathleen Abegale Bis, New Jersey
Chemistry

- | | |
|--|--|
| Robert Alan Blonar, Maryland
Mathematics (With Distinction) | Paul Howard Kravitz, New York
Zoology |
| Lester Eugene Blood, Maryland
Zoology | Christopher Julian Leet, Virginia
Chemistry |
| Laura Ann Bonn, Virginia
Chemistry (With Distinction,
Special Honors) | John Stuart Levy, Connecticut
Chemistry |
| Ellen Preston Broudy, District of
Columbia
Biology | Veronica Marinelli, New Jersey
Chemistry |
| Patricia Mary Brown, New Jersey
Mathematics | Niel Leroy Markussen, Florida
Biology |
| James Ralph Bunting, District of
Columbia
Chemistry | James Marian Martell, Virginia
Chemistry |
| Ronald Vincent Ciuffreda, New York
Biology | Cheryl Anne Morgan, New York
Biology |
| William Brian Davidson, Maryland
Zoology | Joseph Pascal, Jr., New Jersey
Zoology |
| Allan Edward DeWall, Virginia
Geology | Linda Lee Pascale, New Jersey
Zoology |
| Mary Ellen Dix, Maryland
Zoology | Jacqueline Anne Mary Phillips, District
of Columbia
Zoology |
| Carol Ann Forthman, District of
Columbia
Biology | Kathryn Redwine, Virginia
Mathematics |
| Marlene Kristie Fretz, District of
Columbia
Biology (With Distinction) | Madeleine Susan Reines, Maryland
Chemistry (With Distinction,
Special Honors) |
| Barry Martin Geller, New York
Zoology | Gregory Robert Sarsfield, Maryland
Zoology |
| Vito Anthony Giannuzzi, New York
Chemistry | Richard Ivan Schiff, Maryland
Chemistry (Special Honors) |
| Michael Steven Goldstein, New York
Zoology | Jay Alan Siegel, Maryland
Chemistry |
| Mary Alice Goodhue, Massachusetts
Biology | Philip Leonard Simon, New York
Zoology |
| Kenneth Marvin Goodwich, Maryland
Zoology | William A. Sitzler, District of Columbia
Chemistry |
| Carroll Richard Goslee, District of
Columbia
Physics | William David Stanbro, Maryland
Chemistry |
| George Rogers Howard, Jr., District of
Columbia
Zoology | Page Climençon Valentine, Jr., District
of Columbia
Geology (With Distinction) |
| | Eric vanSonnenberg, New York
Zoology |
| | F. William Wagle II, Virginia
Zoology |

GRADUATE SCHOOL OF ARTS AND SCIENCES

MASTER OF ARTS

- | | |
|---|--|
| Dorothy Susanne Albright, Virginia
Economics
B.B.A. 1966, George Washington
University | Arlene Erlich Bearman, Maryland
Economics
B.A. 1965, George Washington
University |
|---|--|

- Judith Florence Berry, District of
Columbia
Economics
B.A. 1966, University of Michigan
- Michelle Beth Bien, New York
Speech Pathology and Audiology
B.A. 1966, Adelphi University
- Edith Howard Breen, Virginia
Psychology
B.A. 1957, Smith College
- Charlotte Jeannette Callens, Maryland
Psychology
B.A. 1965, University of Maryland
- Judith Cooley Cochran, Illinois
English Literature
B.A. 1966, Hood College
- Cora Anne Berliner Cunningham,
District of Columbia
Psychology
B.A. 1965, American University
- Roger Guion Davis, Virginia
History
B.A. 1963, Union College, Nebr.
- Elayne Sandra Dorf, New York
Speech Pathology and Audiology
B.A. 1966, Adelphi University
- Beatriz Elena DuJovne, Maryland
Psychology
Licenciada en Psicología 1963,
National University of Buenos Aires,
Argentina
- Lorraine Wolfe Eskew, District of
Columbia
Speech Pathology and Audiology
B.A. 1936, Lawrence University
- Grace Veronica Firth, Virginia
Sociology
B.A. 1945, University of Southern
California
- Judith Ann Hermanson, England
American Literary and Cultural
History
B.A. 1967, Smith College
- Annette Justine Jones, Mississippi
Sociology
B.A. 1963, Millsaps College
- Charles Donald Liner, Virginia
Economics
B.S. 1961, University of Chattanooga
- Irving May Lynn, Jr., Virginia
Psychology
B.A. 1962, Washington and Lee
University
- Georgia Fenwick Maitland, Maryland
Speech Pathology and Audiology
B.A. 1964, George Washington
University
- Diane Thimme Marsh, Pennsylvania
Psychology
B.A. 1963, University of Michigan
- Adair Renfro McConnell, Virginia
French Language and Literature
B.A. 1956, University of Richmond
- Helen Want Miller, Virginia
History
B.A. 1952, University of Richmond
- Martha Bow Miller, District of
Columbia
Mathematics
B.A. 1965, George Washington
University
- Rhoda Baynard Miller, District of
Columbia
French Language and Literature
B.A. 1962, George Washington
University
- Marcia Duncan Minichiello, New
Hampshire
Psychology
B.A. 1966, George Washington
University
- Hiwhoa Moon, Korea
Economics
B.A. 1960, Seoul National University,
Korea
- Kenneth John Neubeck, Virginia
Sociology
B.A. 1964, George Washington
University
- Mai Thi Tuyet Nguyen, Virginia
Economics
B.A. 1965, George Washington
University
- Rita Ann Pennington, Maryland
Sociology
B.A. 1953, University of Montana
- Tai Wook Rhee, Korea
Economics
B.A. 1961, Seoul National University,
Korea
- Frank Russo, Virginia
Psychology
B.A. 1965, George Washington
University
- Sara Sharratt, Maryland
Psychology
B.A. 1965, George Washington
University

- Charles Trowbridge Stanley, District of
Columbia
Psychology
B.A. 1962, George Washington
University
Carol Lee Steinberg, Maryland
Psychology
B.A. 1960, University of California,
Berkeley
Paul Vernier, Maryland
Philosophy
B.A. 1934, University of California,
Berkeley
- Elizabeth Fleming Wiseman, Maryland
Botany
B.A. 1962, George Washington
University
Elizabeth Woodbury, Virginia
Art History and Criticism
B.A. 1949, M.A.T. 1950, Radcliffe
College
Tescia Ann Yonkers, District of
Columbia
Museology
B.A. 1967, George Washington
University

MASTER OF SCIENCE

- Javher Vallabdas Advani, District of
Columbia
Chemistry
B.S. 1954, M.S. 1958, University of
Bombay, India
Dwight Philips Blankenbaker, Maryland
Biology
B.S. 1966, George Washington
University
Bill Bunnag, District of Columbia
Biology
B.S. 1965, George Washington
University
Keith Arthur Burke, Maryland
Mathematical Statistics
B.E.S. 1960, Johns Hopkins University
George Eugene Clark, Maryland
Biochemistry
D.D.S. 1962, Ohio State University
John Douglas Doherty, District of
Columbia
Biochemistry
B.S. 1965, University of New
Hampshire
Faye Souder Gibson, District of
Columbia
Biochemistry
B.S. 1960, Livingstone College
Gordon Franklin Haas, New York
Anatomy
B.S. 1966, City College, New York
Arnold Gene Horner, Maryland
Mathematics
B.S. 1964, Carnegie Institute of
Technology
Jung Chun Hyun, District of Columbia
Biochemistry
B.S. 1965, Seoul National University,
Korea
- Kumpol Klunklin, District of Columbia
Physiology
B.S. in Phar. 1957, M.D. 1961,
University of Medical Sciences,
Bangkok, Thailand
Susan Ann Knadle, District of Columbia
Zoology
B.S. 1965, George Washington
University
Lawrence Allen Lee, Maryland
Mathematics
B.S. 1964, Virginia Polytechnic
Institute
Tse-Hong Lin, Virginia
Chemistry
B.S. 1963, Nanyang University,
Singapore
Raymond Morris Lupse, Virginia
Anatomy
B.S. 1966, Ohio University
James Walter Ryan, Maryland
Mathematics
B.S. 1961, John Carroll University
Joan Randolph Scott, Virginia
Biochemistry
B.A. 1954, Cornell University
Janusz Bogdan Suszkiw, District of
Columbia
Biochemistry
B.S. 1966, George Washington
University
Arlene Aaro Wormelduff, Maryland
Biology
B.S. 1966, Maryland State College,
Frostburg
Terrye Green Zaremba, Maryland
Biochemistry
B.A. 1964, Temple University

MASTER OF FINE ARTS

Anne Johnson Banks, Connecticut

Painting

B.A. 1946, Wellesley College

Joyce Harmon Crain, Virginia

Painting

B.F.A. 1963, Bowling Green State

University

Helen Elizabeth Dunaway, Iowa

Painting

B.A. 1950, George Washington

University

Edgardo Franceschi, District of

Columbia

Painting

B.A. 1965, University of Puerto Rico

Howard Wilson McCoy, District of

Columbia

Painting

B.A. 1967, Georgetown University

John Clemente Sirica, District of

Columbia

Graphics

B.S. in Ed. 1958, The Citadel

DOCTOR OF PHILOSOPHY

Nancy Murphy Adams, District of Columbia

Psychology

Dissertation: *Changes in Pupil Size under Conditions of Anxiety and Stress*

B.A. 1957, American University

M.A. 1961, George Washington University

Hana Bruml, Virginia

Psychology

Dissertation: *Consistency of Hand Usage: Developmental Aspects*

B.A. 1961, M.A. 1962, George Washington University

Don Cahalan, Virginia

Psychology

Dissertation: *Correlates of Change in Drinking Behavior in an Urban Community over a Three-year Period*

B.A. 1937, M.A. 1938, University of Iowa

Roy Zebulon Chamlee, Jr., Maryland

History

Dissertation: *The Sabbath Crusade: 1810-1920*

B.A. 1951, University of Georgia

B.D. 1953, Th.M. 1961, Southern Baptist Theological Seminary

Diploma 1956, Escuela de Idiomas, San Jose, Costa Rica

M.A. 1960, University of Louisville

Joseph Emile Ciardi, Maryland

Biochemistry

Dissertation: *Pyrimidine Nucleotide Biosynthesis in Neoplastic Cells: The "Salvage" Pathway via Uridine Kinase*

B.A. 1956, Boston University

M.S. 1964, George Washington University

Anita Mallinckrodt Dasbach, District of Columbia

Political Science

Dissertation: *Propaganda behind the Wall: A Case Study in the Use of Propaganda as a Tool of Foreign Policy by Communist Governments*

B.J. 1951, University of Missouri

M.A. in Govt. 1963, George Washington University

Frances Ruth Finnie, District of Columbia

Psychology

Dissertation: *The Relationship between Perceptual Field Articulation and Intellectual Functioning in Paranoid Male Schizophrenics*

B.A. 1929, M.A. 1935, George Washington University

Dale Martin Heien, Maryland

Economics

Dissertation: *An Econometric Model of United States Government Revenues and Expenditures*

B.A. 1960, M.A. 1962, University of Illinois

John Paul Kluge, Iowa

Pathology

Dissertation: *The Pathogenesis of Ovine Contagious Ecthyma*

B.S., D.V.M. 1962, University of Missouri

M.S. 1965, Iowa State University of Science and Technology

Michael Liebman, District of Columbia

Anatomy

Dissertation: *A Comparative Study of the Nuclear Configuration of the Diencephalon in the Golden Hamster and the Midwestern Mole, with Observations on the Major Fiber Tracts*

B.A. 1955, New York University

M.S. 1965, George Washington University

John Anthony Marlin, District of Columbia

Economics

Dissertation: *Financial Institutions and Economic Growth in South Africa, 1956-1966*

B.A. 1962, Harvard University

B.A., M.A. 1964, Oxford University, England

Thomas Gower Merrill, Maryland

Anatomy

Dissertation: *Cholera: A Disease of the Small Intestine; a Light and Electron Microscopic Study*

B.S. 1959, University of Pittsburgh

M.S. 1964, George Washington University

Eldon Stiles Miller, Virginia

Geography

Dissertation: *Optimum Sizes for Urban Complexes and for Components of an Urban Hierarchy*

B.A. 1960, M.A. 1963, George Washington University

Ann McFarling Milne, Maryland

Psychology

Dissertation: *A Developmental Study of Touch and Vision: Form Learning and Crossmodal Transfer*

B.A. 1960, University of California, Berkeley

M.A. 1962, George Washington University

William Bateman Moore, Arizona

Psychology

Dissertation: *Drawings of Human Figures in Relation to Psychopathology and Intellectual Functioning*

B.A. 1961, M.A. 1965, George Washington University

George William Mushrush, Virginia

Chemistry

Dissertation: *Lanthanide Ions as Sensitive Probes in Intermolecular Energy Transfer and Organic Photochemistry*

B.S. 1962, Pennsylvania State College, Indiana

M.S. 1965, George Washington University

Kyle W Petersen, District of Columbia

Anatomy

Dissertation: *The Effect of Caffeine on Spermatogenesis in the Rat*

B.S. 1964, M.S. 1965, George Washington University

George Edward Radwin, Maryland

Zoology

Dissertation: *A Taxonomic Revision of the Family Columbellidae in the Western Atlantic*

B.S. 1962, Brooklyn College

M.S. 1964, Florida State University

Lee Bjork Sanderson, Maryland

Mathematical Statistics

Dissertation: *Statistical Decision Systems—Theoretical and Applied Results*

B.A. 1960, Concordia College

M.A. 1963, University of Minnesota

Rais B. Saniman, District of Columbia

Economics

Dissertation: *Determinants and Behavior of the Money Supply in Malaysia*

B.A. 1959, B.A. 1960, University of Singapore

M.A. 1964, George Washington University

Henry Astushi Sasame, Maryland

Biochemistry

Dissertation: *Mechanism of Inhibition of NADPH Dependent Enzymes in Liver Microsomes*

B.S. 1954, Washington State University

M.S. 1956, Rensselaer Polytechnic Institute

Johannes Herbert Schroeder, Germany

Geology

Dissertation: *Experimental Dissolution of Calcium, Magnesium, and Strontium, from Recent Biogenic Carbonates: A Model of Diagenesis*

Diplom Geologe 1964, Eberhard-Karls-Universitaet, Tuebingen, Germany

Sterling Scott Sutton, Virginia

Economics

Dissertation: *An Evaluation of Investment Criteria*

B.A. 1953, M.A. 1956, University of Florida

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B.A. 1965, Yale University
- Robert Samuel Tignor, District of Columbia
(With Honors)
B.A. 1965, Howard University
- Malcolm Raymond Trifon, California
(With Honors)
B.A. 1965, Occidental College
- Kenneth Jesse Tuggle, Virginia
B.A. 1962, Yale University
- Thomas Vincent Vakerics, District of Columbia
(With Honors)
B.A. 1965, Bowling Green State University
- Robert Roy Vawter, Jr., Florida
(With Honors)
B.A. 1965, George Washington University
- Robert Joseph Verdisco, New York
B.A. 1965, Pennsylvania State University
- Robert William Villareale, Maryland
B.A. 1965, Providence College
- Robert Paul Wade, District of Columbia
B.A. 1963, George Washington University

Sidney Arthur Wallace, Florida
(With Honors)
B.S. 1949, U.S. Coast Guard Academy
Gerald Douglas Warner, Michigan
B.A. 1965, Michigan State University
Jeffrey Noboru Watanabe, Hawaii
B.A. 1965, University of California,
Berkeley
Timothy James Waters, Virginia
(With Honors)
B.S. 1965, University of San Francisco
John Graham Watson II, New Jersey
B.A. 1965, Wesleyan University
Stanley Morris Weinberg, Virginia
(With Honors)
B.S. in E.E. 1964, Drexel Institute of
Technology

Gary David Weinstein, Virginia
B.A. 1965, Tulane University of
Louisiana
Owen Wayland Wells, Maine
B.A. 1965, University of Maine
Carole Winston Wilson, District of
Columbia
B.A. 1965, Vassar College
Henry Riddle Wray, Pennsylvania
(With Honors)
B.A. 1965, Washington and Jefferson
College
Arthur Grant Yuter, New York
B.B.A. 1965, City College, New York
Michael Alan Zablocki, New York
B.A. 1965, Brooklyn College
Robert Peter Zaepfel, New York
B.S. in E.E. 1965, University of
Notre Dame

MASTER OF LAWS

Philip Lee Babin, Virginia
B.A. 1962, Lehigh University
LL.B. 1965, Cornell University
Gerald Cullen Baker, Maryland
B.S. 1958, Marquette University
LL.B. 1961, University of Wisconsin
Frederic Eugene Dorkin, Virginia
B.A. 1953, Dartmouth College
LL.B. 1956, Duke University
William Perry Dray, Virginia
B.S. 1962, J.D. 1964, University of
Wyoming
Robert Henry Feldman, Virginia
B.S. in B.A. 1963, M.Acct., LL.B.
1966, University of Arizona
Richard Sidney Fisher, Maryland
B.S. 1959, Pennsylvania State
University
LL.B. 1962, Cornell University
Charles Francis Flynn, District of
Columbia
B.E.E. 1962, LL.B. 1965, Catholic
University of America
William Grobman, Maryland
B.S. in E.E. 1944, Rutgers, the State
University
J.D. 1952, George Washington
University
Lawrence Francis Henneberger,
Maryland
B.B.A. 1960, LL.B. 1962, Loyola
University, La.

Shirley Wayne Holt, Virginia
B.A. 1957, Tulane University of
Louisiana
J.D. 1966, American University
Joseph Daniel Jeffrey, Maryland
B.S. 1941, U.S. Naval Academy
B.S. in Ae.E. 1950, U.S. Naval
Postgraduate School
M.M.E. 1951, Rensselaer Polytechnic
Institute
J.D. 1964, George Washington
University
Bernard Jack Jerlstrom, Virginia
B.A. 1958, Duke University
LL.B. 1964, University of Miami
Albert McGregor Johnston, Jr., Virginia
B.S. 1963, Michigan State University
LL.B. 1966, University of Minnesota
James Russell Jurecka, Virginia
B.A. 1957, Rice Institute
LL.B. 1965, George Washington
University
Lee Neilson Koehler, Maryland
B.A. 1961, Gettysburg College
LL.B. 1965, University of Maryland
Arthur Anthony Lemann III, Virginia
B.A. 1964, Tulane University of
Louisiana
LL.B. 1967, Loyola University, La.

Ernest Bainbridge Lipscomb III, South Carolina
 B.S. 1963, J.D. 1965, University of Mississippi
 George Wesley Miller, New York
 B.A. 1963, Princeton University
 LL.B. 1966, Harvard University
 Melvyn Irwin Monzak, Maryland
 B.S. 1962, University of Rhode Island
 LL.B. 1965, George Washington University
 Martin Paskoff, Maryland
 B.A. 1959, Brooklyn College
 LL.B. 1962, Brooklyn Law School
 Courtland Dixon Perry II, Maine
 LL.B. 1961, University of Virginia
 Ronald James Roessler, Virginia
 B.A. 1961, Miami University
 J.D. 1964, University of Wisconsin
 William Allen Sanders, Virginia
 LL.B. 1957, University of Alabama
 Joseph Roy Seiger, New York
 B.A. 1964, University of Pittsburgh
 J.D. 1967, University of Michigan

Charles Elliott Shapiro, Maryland
 B.S. 1960, University of Maryland
 J.D. 1963, George Washington University
 Barry Lee Springel, Maryland
 B.S. 1964, Drexel Institute of Technology
 J.D. 1967, University of Michigan
 Jerome Kenneth Tankel, Virginia
 B.A. 1957, University of Illinois
 LL.B. 1963, Harvard University
 Herbert Samuel Urbach, Virginia
 B.A. 1958, Middlebury College
 LL.B. 1961, University of Virginia
 Thomas Dewey Wise, South Carolina
 B.A. 1961, LL.B. 1964, University of South Carolina
 Frederick Clarke Woodruff, Jr., Virginia
 B.A. 1959, Colgate University
 LL.B. 1962, Syracuse University
 John Ward Wright, District of Columbia
 LL.B. 1950, University of Miami

MASTER OF COMPARATIVE LAW

Michele Barbieri, Virginia
 J.D. 1965, University of Pisa, Italy

Yasuhiro Hagihara, Japan
 LL.B. 1961, Keio University, Japan

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Student Marshal: John Timothy Cavanaugh

BACHELOR OF SCIENCE (Civil Engineering)

David Winston Berg, District of Columbia
 Joseph Edward Castle, District of Columbia
 Robert Ellsworth Dove, Virginia

Burton Goldstein, District of Columbia
 Terry Don Grefe, Virginia
 James Robert Harris, Jr., Virginia
 Bruce Robert Neuffer, Virginia
 Antonio Jesus Riva, Virginia

BACHELOR OF SCIENCE (Electrical Engineering)

John Arthur Bissell, Jr., Connecticut
 Richard Jay Blumberg, Maryland
 Milton Ernest Borel, New York
 John Timothy Cavanaugh, District of Columbia
 (With Distinction)

Andrew Stacy Deming, District of Columbia
 Thomas Arthur Enger, Virginia
 Abdelaziz Fadlaoui, Tunisia
 Kenneth Glen Foote, Maryland
 (With Distinction, Special Honors)

Jan Elliot Friedlander, District of
Columbia
William Arthur Herman, District of
Columbia
Ralph Waesche Hunt, Virginia
Stephen Warren Klare, Virginia
Ronald Frank Kopeck, Maryland

Harry Albert Kuhn, Jr., District of
Columbia
Michael B. Laurenson, Virginia
Charles David Miller, Virginia
Joseph William O'Byrne, Jr., Maryland
Frederick Lorenze Smith, Virginia
Thomas George Stix, Maryland

BACHELOR OF SCIENCE (Mechanical Engineering)

Peter Montague Austin, Connecticut
B.A. 1965, Georgetown University
Richard Effinger Barton, Jr., Maryland
Ernst Bonhomme, District of Columbia
B.A. 1966, Rockford College

Gerard Peter Carroll, District of
Columbia
Spencer Alan Hum, District of Columbia
Terrell Paul Lewis, Virginia
John Carl Tsamisis, New York
B.S. 1966, Morris Harvey College

MASTER OF ENGINEERING ADMINISTRATION

Robert Stephen Adams, North Carolina
B.S. in E.E. 1965, North Carolina
State University at Raleigh
Marshall Julius Armstrong, Jr., Virginia
B.S. in M.E. 1958, University of
Vermont
Carl Lee Barton, Maryland
B.S. in E.E. 1962, Lafayette College
Howard Gerald Bergman, Maryland
B.Ch.E. 1959, New York University
Gerald Wayne Best, New York
B.A. 1961, University of Washington
Michael Edward Carosella, Virginia
B.S.(M.E.) 1966, George Washington
University
Dudley Morris Cate, Maryland
B.A. 1963, B.S. in M.E. 1963, Union
College and University
William Roy Chokran, Maryland
B.S. in I.E. 1959, University of
Pittsburgh
B.S. in Engr. 1963, Johns Hopkins
University
William Winans Coe, Maryland
B.S. 1961, College of William and
Mary
Robert Vernon Garver, Maryland
B.A. 1956, University of Maryland
William James Gayne, Virginia
B.Ae.E. 1960, Polytechnic Institute
of Brooklyn
Rodney Durwood Hardy, Virginia
B.S. in M.E. 1958, University of
Vermont
Norman John Hess, District of Columbia
B.S.(M.E.) 1966, George Washington
University

John Joseph Kinloch, Maryland
B.S. 1959, Southwest Missouri State
College
Ronald William Leaver, Maryland
B.S. in M.E. 1960, Ohio University
Arthur Howard McCollum, Jr., Virginia
B.S. 1952, U.S. Naval Academy
Gerald Francis O'Brien, Virginia
B.S. 1960, Pennsylvania State
University
Wilson Truesdale Outlaw, Jr., Maryland
B.S. in E.E. 1965, University of
South Carolina
Kizhiyath Prasad, Maryland
B.S. in E.E. 1966, Howard University
Claude Leroy Rackley, Virginia
B.S. in E.E. 1965, North Carolina State
University at Raleigh
Howard Hugo Rohm, Maryland
B.S. 1963, Iowa State University of
Science and Technology
James Alexander Rupp, Maryland
B.S. in E.E. 1959, Grove City College
Donald Alan Shriver, Pennsylvania
B.S. in C.E. 1964, Drexel Institute of
Technology
Marvin Boyd Simmons, Maryland
B.S. 1962, University of Maryland
Kenneth William Smith, Maryland
B.M.E. 1963, Cleveland State
University
Daniel Alan Spintman, Maryland
B.E.S. 1959, Johns Hopkins University
John Friel Stokes, Maryland
B.E.E. 1962, Catholic University of
America

Dennis William Swift, Virginia
 B.E.E. 1960, Villanova University
 David Knowlton Trask, Virginia
 B.M.E. 1962, George Washington University
 Ray Bryant Tucker, Maryland
 B.S. 1953, University of Georgia
 Thomas Raymond Twigg, Maryland
 B.S. in E.E. 1963, University of Pittsburgh

Donald Ray Vaughn, Ohio
 B.S. 1946, U.S. Coast Guard Academy
 Kenneth Foster Ward, Maryland
 B.S. in C.E. 1947, Tufts University
 Seymour Wengrovitz, Virginia
 B.C.E. 1951, City College, New York
 George Leon Wooley, Maryland
 B.S. in E.E. 1961, Prairie View Agricultural and Mechanical College

MASTER OF SCIENCE

James Fredrick Aldrich, District of Columbia
 B.S. in E.E. 1964, St. Louis University
 Marvin Harry Burke, District of Columbia
 B.S.E. 1961, University of Michigan
 Lahma Bliss Flack, Virginia
 B.S. in E.E. 1962, Virginia Polytechnic Institute
 Charles Edward Gervie, Maryland
 B.S. 1964, University of Nevada
 Joseph Angelo Giordano, Maryland
 B.S. in E.E. 1957, Clarkson College of Technology
 Michael George Harris, Maryland
 B.S. 1964, University of Maryland
 James Nathan Hicks, Texas
 B.S. 1957, University of Texas
 Gene Dale Hodge, Maryland
 B.S. in E.E. 1958, Illinois Institute of Technology
 B.S. 1963, University of Texas
 William Hugh Iglehart, Maryland
 B.S. in E.E. 1959, University of Maryland
 Philip Frank Ingersoll, District of Columbia
 B.S. in E.E. 1960, Johns Hopkins University
 Fred William Kallmeyer, Maryland
 B.S. in E.E. 1963, Northeastern University
 William Emil Kotwas, Maryland
 B.E.E. 1963, George Washington University
 Jerry Wayne Lescher, Maryland
 B.S. 1963, University of Oklahoma
 Joseph Francis Martino, Jr., Virginia
 B.E.E. 1965, George Washington University
 Edward Nugent McCaney, Virginia
 B.S. in E.E. 1964, Drexel Institute of Technology

Steven Morrison, Maryland
 B.S. 1960, Rutgers, the State University
 Donald Elmer Mullikin, Maryland
 B.S. 1964, University of Maryland
 Richard James Otero, Maryland
 B.S. in E.E. 1961, Newark College of Engineering
 John Joseph Phillips, District of Columbia
 B.S. in E.E. 1965, Drexel Institute of Technology
 Martin John Reville, Maryland
 B.S. in E.E. 1963, Johns Hopkins University
 Frederick Randolph Seyfried, Virginia
 B.S. in E.E. 1963, Virginia Polytechnic Institute
 Joseph Robert Silverman, Maryland
 B.S. in E.E. 1959, Northeastern University
 Eddy So Siauwa Ka, District of Columbia
 Diploma 1964, Institute of Technology, Bandung, Indonesia
 Larry Edwin Telfer, Ohio
 B.S. 1958, U.S. Coast Guard Academy
 B.S. 1964, U.S. Naval Postgraduate School
 Paul Alfred Ternlund, Maryland
 B.E.E. 1965, Georgia Institute of Technology
 Frederick Earl Warnock, Maryland
 B.S. in E.E. 1964, University of Maryland
 James Abel Webb, Jr., Maryland
 B.S. in E.E. 1958, Clemson University
 Martin Wolk, Maryland
 B.S. 1957, George Washington University
 Hudai Yavalar, District of Columbia
 B.S. 1963, Howard University

MASTER OF SCIENCE IN ENGINEERING

- | | |
|---|--|
| Garet Alexander Bornstein, District of Columbia
B.S. in Engr. 1961, George Washington University | David Paul Kraus, Maryland
B.S. in E.E. 1962, Gannon College |
| Harold Quintin Foster, Jr., Massachusetts
B.E.E. 1961, Georgia Institute of Technology | Charles Vincent Moyer, Maryland
B.E.E. 1961, George Washington University |
| John Joseph Klisch, Virginia
B.E.E. 1962, Catholic University of America | Philip Walcoff, Maryland
B.E.E. 1963, George Washington University |

DOCTOR OF SCIENCE

- | | |
|---|--|
| James Curwood Aller, Virginia
Biomedical Engineering
Dissertation: <i>Multi-sensor Data Processing for Screening and Predictive Health Control Applications: A Systems Analysis</i>
B.S. 1942, U.S. Naval Academy
M.A. 1949, M.E.S. 1954, Harvard University | Nicholas Kyriakopoulos, Maryland
Network Theory
Dissertation: <i>Synthesis of Active RC Networks Using State-space Models</i>
B.E.E. 1960, M.S. in Engr. 1963, George Washington University |
| Soedjana Sapiie, District of Columbia
Measurement Science
Dissertation: <i>The Study of Electrical Conduction Properties of Point-to-Plane Electrodes and Their Influence on the Accuracy of Force Measurements</i>
Diploma 1955, Bandung Institute of Technology, Indonesia
M.S. in E.E. 1957, Stanford University | Michael Yachnis, District of Columbia
Fluid Mechanics
Dissertation: <i>Theoretical and Experimental Study of Internal Waves Generated by a Density Current down a Sloping Bottom</i>
B.S. 1943, Military College, Athens, Greece
B.S. in C.E. 1951, Military Technical Training College, Athens, Greece
M.S. in Engr. 1956, M.E.A. 1962, George Washington University |

SCHOOL OF EDUCATION

Student Marshal: Karla Ann Leibowitz

BACHELOR OF ARTS IN EDUCATION

- | | |
|---|---|
| Toni Roy Alexander, Connecticut
Elementary Education | Karen Andrea Brandt, New Jersey
Elementary Education |
| Natalie Alter, New Jersey
Elementary Education | Hedda Rachel Braunstein, New Jersey
English |
| Mary Louise Anderson, New York
French | Barbara Joan Brent, Virginia
Elementary Education |
| Jacqueline Carol Banyasz, New Jersey
French | Marilyn Lee Brodie, New Jersey
Elementary Education |
| Ann Rae Barrett, District of Columbia
Social Studies | Eloise Jane Brooks, Virginia
Elementary Education |
| Nancy Eileen Berman, Rhode Island
Elementary Education | Janice Ellen Brooks, New York
Elementary Education |

- William John Campbell, Virginia
Physics
- Marie-Noëlle Jeanne Car, Maryland
French
- Kathleen Scheel Carter, Virginia
English
- Kate Bazol Cohen, Virginia
Elementary Education
- Jill Connor, District of Columbia
Elementary Education
- Norma Patricia Crain, Virginia
English
- Andrea Lynn Cummings, California
Elementary Education
- Susan Marsha Dorff, New Jersey
Social Studies
- Ellamae Elizabeth Doyle, Virginia
General Science
- Elayne Tamara Fattman, District of
Columbia
Elementary Education
- Barbara Helene Fein, New York
Elementary Education
- Diane Eileen Fellman, Maryland
English
- Sandra Lynn Ganderson, Virginia
Elementary Education
- Abby M. Gelles, New York
Elementary Education
- Joanne Gail Glazer, New York
Social Studies
- Kathy Barbara Goldsmith, New Jersey
French
- Alice Toohey Goodfellow, Virginia
Elementary Education
- Ronni Sue Goodman, New York
Social Studies
- Suzanne DeVries Green, Virginia
Elementary Education
- Ellen Marie Hayes, Virginia
Elementary Education
- Lucinda Jane Henry, Texas
English
- June Stern Hirschler, Virginia
Elementary Education
- Lynda Elizabeth Jeffrey, Pennsylvania
Elementary Education
- Lois Carol Kann, Maryland
Elementary Education
- Martha Marlene Kantor, New York
Social Studies
- Bonnie Lou Kaplan, New Jersey
Elementary Education
- Patricia Margaret Keating, New York
Elementary Education
- Colleen Ann Kelley, Connecticut
Business Education
- Patricia Jean Kellogg, Maryland
Elementary Education
- Eileen Marie Kelly, Virginia
Social Studies
- Margaret Fraser Kelso, Virginia
Elementary Education
- Francine King, New York
Elementary Education
- Madeleine Jenny Kraemer, District of
Columbia
German
- Adele Temin Lehrman, Maryland
English
- Karla Ann Leibowitz, Pennsylvania
History (With Distinction)
- Laura Levin, District of Columbia
Elementary Education
- Ann Steinkraus Levine, New York
English
- Kathleen Dawn Madore, California
English
- Laurie Beth Maisel, New York
Elementary Education
- Beverly Ward McCarthy, Virginia
Mathematics
- Karen Joy Mender, New York
Elementary Education
- Louis Henry Mense, Virginia
Social Studies
- Cynthia Ann Miller, Virginia
Social Studies
- Susan Carol Mostov, Maryland
Elementary Education
- Charlotte Fisher Mueller, Virginia
Elementary Education
(With Distinction)
- Charlotte Cochran Munster, Virginia
Elementary Education
- Cherryl Anne Neill, District of
Columbia
Mathematics
- Alexandra Walls Nugent, Virginia
Social Studies
- Carol Jo Nusbaum, Virginia
Music
- Beverly Joy Oppen, New Jersey
Dance
- Sandra Lynn Partington, New Jersey
Elementary Education
- Ann Mary Pettit, New Jersey
History
- Jean Carol Pirrello, Massachusetts
English
- Natalie Ruth Posner, New York
Elementary Education
- Donna Sue Rafal, Virginia
English

- Sandra Slaymaker Rambo, Pennsylvania
Elementary Education
- Charles Sidney Rockefeller, District of
Columbia
Elementary Education
- Doreen Rudy, New Jersey
Elementary Education
- Doris Schaechter, New Jersey
Elementary Education
- Jill Bonnie Scharer, New Jersey
Elementary Education
- Tobey Schneider, Maryland
Elementary Education
- Judith Nan Schoengold, New York
Elementary Education
- Lynn Wilma Seinfeld, New Jersey
Speech and Drama
- Karen Lynne Seltzer, New Jersey
Social Studies
- Susan Eileen Shucker, Pennsylvania
Social Studies
- Carole Anne Smith, New York
Elementary Education
- Jane Roberta Snider, Virginia
Elementary Education
- Elizabeth Corliss Stevenson, District
of Columbia
English
- Lynn Barbara Szerlip, New York
Elementary Education
- Patricia Helene Urken, New Jersey
Elementary Education
- Virginia Matilda Veeder, Virginia
Spanish
- Veronica Ruth Wallen, New York
Elementary Education
- Patricia Louan Whitney, Maryland
Elementary Education
- Wendy Lee Winett, Missouri
Elementary Education
- Mary Anne Winslow, Virginia
Elementary Education

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION

- Edward Lee Bradshaw, Virginia
- Helene Emmet, New York
- Mary Ann Catherine Gelsinon,
New Jersey
- Beatrice Jo-Ann Harkleroad, Virginia
- Thomas Peter Hilton, Maryland
- Charles Jay Humphries, Virginia
- Dianna Maria Knight, Maryland
- Fred Arthur Yakin, Virginia

MASTER OF ARTS IN EDUCATION

- James Selby Alexander, Maryland
School Administration
B.S. 1958, North Carolina College at
Durham
- Dennis Haywood Askew, Jr., District of
Columbia
School Administration
B.S. in Ed. 1959, North Carolina State
College, Elizabeth City
- Lynne Yvonne Asmuth, Wisconsin
Adult Education
B.S. 1962, University of Wisconsin
- Amy Joan Auerbach, Virginia
Reading
B.S. 1967, Pennsylvania State
University
- Edward Robert Baltruchitis,
Pennsylvania
Student Personnel Work in Higher
Education
B.S. in Ed. 1967, Pennsylvania State
College, Mansfield
- Lee Hayden Bell, Virginia
B.Mus.Ed. 1951, Madison College
- Levia Benjamini, District of Columbia
Special Education
B.A. in Ed. 1967, George Washington
University
- Carol Louise Billow, Virginia
Special Education
B.S. in Ed. 1940, Ohio State University
- Mary Alice Blanford, Texas
Special Education
B.A. 1965, Stephen F. Austin State
College
- Susan Mary Bouma, Virginia
B.A. 1965, St. Mary's College, Ind.
- Gerald David Bravi, Virginia
Special Education
B.S. 1959, M.S. in Ed. 1965, State
University of New York, College at
Cortland
- Mary Ohnnie Bray, Ohio
Special Education
B.S. in H.E. 1940, West Virginia State
College
- John Richard Breedlove, Virginia
School Administration
B.S. 1964, East Carolina University

- Ruth Watson Busbee, Virginia
School Administration
B.A. 1931, Atlantic Christian College
- Merle Nan Cantor, Maryland
Elementary Education
B.A. in Ed. 1960, George Washington University
- Dorothy Jean Cardwell, Virginia
Reading
B.S. in Ed. 1962, Ball State University
- Susan Runner Christen, Virginia
Adult Education
B.A. 1940, University of Iowa
B.A. 1966, George Washington University
- Christine Lingle Close, Virginia
Elementary Education
B.S. in Ed. 1967, Wittenberg University
- Elaine Lois Colella, Connecticut
Special Education
B.S. 1963, Southern Connecticut State College
- Rebecca Forlines Dailey, North Carolina
Special Education
B.A. in Ed. 1967, University of North Carolina
- Floyd Andrew Davis, Texas
School Administration
B.S. 1955, Morehouse College
- Elizabeth Anne Driscoll, New York
Special Education
B.S. 1967, State University of New York, College at Plattsburgh
- Donald James Druckenmiller, Virginia
Physical Education
B.S. in P.E. 1950, George Washington University
- Willie Esther Duff, District of Columbia
Elementary Education
B.S. in Ed. 1947, Winston-Salem College
- Samuel Esayian, Michigan
Physical Education
B.A. 1962, Baldwin-Wallace College
- John Francis Falcone, Maryland
Special Education
B.A. 1953, St. Mary's Seminary and University
- Cecil Holbert Fazenbaker, Maryland
Guidance
B.S. 1955, Maryland State College, Frostburg
- Carol Mazaroff Fineblum, Maryland
Special Education
B.A. in Ed. 1949, George Washington University
- Judith Ann Fiscus, Maryland
Elementary Education
B.A. 1964, Purdue University
- Nona Marie Flynn, Virginia
Special Education
B.A. 1956, Trinity College, D.C.
- Desmond Francis Gatti, Virginia
Physical Education
B.S. in P.E. 1961, George Washington University
- Leland Ira Gillette, Maryland
School Administration
B.S. in Ed. 1962, Pennsylvania State College, East Stroudsburg
- Raymond Anthony Golla, Maryland
Employee Training
B.S. in B.A. 1956, Marquette University
- Marcia Jean Greil, Maryland
Student Personnel Work in Higher Education
B.A. 1966, State University of New York, College at Buffalo
- Geneva Bowman Hall, Virginia
School Administration
B.S. 1941, D.C. Teachers College
- Virginia David Hamilton, Maryland
Special Education
B.A. 1958, University of Illinois
- Gretta Lavinia Gordy Henry, Maryland
Special Education
B.S. 1956, Maryland State College, Bowie
- Donna Carol Holt, Maryland
Physical Education
B.A. in Ed. 1966, University of Kentucky
- Andrea Janice Irby, District of Columbia
Elementary Education
B.S. 1964, D.C. Teachers College
- Earlene Myrtle Jenkins, District of Columbia
School Administration
B.A. 1962, American University
- Belinda Anne Johnson, District of Columbia
Curriculum
B.A. 1965, University of North Carolina at Greensboro
- Judith Kathleen Johnson, Virginia
Special Education
B.A. 1964, American University

- Michael Dennis Jordan, District of Columbia
School Administration
B.S. 1965, Howard University
- Susan Mona Kane, New York
Special Education
B.A. in Ed. 1967, George Washington University
- Barbara Sylvia Katz, Maryland
Physical Education
B.S. in P.E. 1952, Brooklyn College
- Elizabeth Beasley Kennerly, District of Columbia
School Administration
B.S. 1952, D.C. Teachers College
- Wayne Wesley Knapp, Minnesota
School Administration
B.S. 1961, University of Minnesota
- Walter Foye Krug, Maryland
School Administration
B.A. in Ed. 1964, George Washington University
- Nina Louise Lacy, Ohio
Special Education
B.S. in Ed. 1965, Wittenberg University
- Veronica Agnes Lake, Maryland
Reading
B.A. 1966, Catholic University of America
- Joseph Francis Lalli, Pennsylvania
Physical Education
B.S. in P.E. 1967, George Washington University
- Renold Robert Lambert, District of Columbia
Elementary Education
B.A. 1959, George Washington University
- Joanne Mary Lantosh, District of Columbia
Guidance
B.A. 1965, Pennsylvania State University
- Michael Joseph Lapriola, Maryland
School Administration
B.S. 1964, University of Maryland
- Paul Gerard Larkin, Maryland
Research and Evaluation
B.A. 1953, St. Mary's Seminary and University
S.T.B. 1955, S.T.L. 1957, Gregorian University, Rome, Italy
- Margaret Connolly Leeper, Virginia
Reading
B.S. in Ed. 1961, University of Vermont
- Paul Roderic Lewis, Maryland
Secondary Education
B.A. 1966, George Washington University
- Burton Helmer Lohnes, Maryland
Special Education
B.S. 1965, Central Connecticut State College
- Jacquelyn Sue Lucy, Maryland
Secondary Education
B.A. 1967, Maryland State College, Towson
- Edwina Loretta McDonald, Illinois
Adult Education
B.S. in H.E. 1946, Rosary College
- Edward Harvey McEachron, Virginia
Physical Education
B.S. in Ed. 1949, State University of New York, College at Cortland
- Ruchana N. Medine, New Jersey
Secondary Education
B.A. 1967, Monmouth College, N.J.
- Patricia Ellen Melrod, District of Columbia
Elementary Education
B.A. 1967, State University of New York at Buffalo
- Joan L. Miller, District of Columbia
Guidance
B.A. 1956, Howard University
- Ellsworth Mason Mitchell, District of Columbia
School Administration
B.S. 1958, D.C. Teachers College
- Cora Elizabeth Moore, Maryland
Secondary Education
B.A. in Ed. 1965, George Washington University
- Janice Gray Morman, District of Columbia
Special Education
B.S. 1951, D.C. Teachers College
- Annie Wynn Neal, District of Columbia
Elementary Education
B.S. 1955, Virginia State College
- Adelbert Townsend Norwood, Virginia
Physical Education
B.S. in Ed. 1951, University of Maine
- Susan Saffren Oblon, Virginia
Philosophy of Education
B.S. in Ed. 1966, Temple University
- Laurel Weber Oliver, Maryland
Guidance
B.S. 1948, University of Washington

- Charles Domenick Packan, District of
Columbia
Secondary Education
B.S. in P.E. 1961, George Washington
University
- Barbara Doranne Garfield Paulson,
Maryland
Guidance
B.S. 1963, New York University
- Diane Reiter Petersen, Maryland
Special Education
B.S. 1964, Florida State University
- Martha Reber Pfeiffer, Virginia
Guidance
B.A. 1936, Belhaven College
- Dorothy Gertrude Pritts, Maryland
School Administration
B.S. 1964, University of Maryland
- Patricia Shear Pylypec, Maryland
Elementary Education
B.A. 1951, Western Maryland College
- Francis Jerome Queen, Maryland
Special Education
B.A. 1952, St. Augustine's College
- Alice Hybernia Ray, District of
Columbia
School Administration
B.S. 1949, D.C. Teachers College
- Judy Fern Reiner, Illinois
Special Education
B.S. in Ed. 1967, University of
Michigan
- Lois Compton Richards, Virginia
Adult Education
B.A. 1959, M.A. 1961, George
Washington University
- Grace Kersey Richardson, Virginia
School Administration
B.S. 1934, New Jersey State College,
Trenton
- Sylvester Vincent Roberts, Maryland
Elementary Education
B.S. 1958, Columbia Union College
- Delitha Jane Robertson, Maryland
School Administration
B.S. 1951, East Carolina University
- David Robinson, District of Columbia
School Administration
B.S. in Ed. 1961, Winston-Salem
College
- Jean Marjorie Robinson, District of
Columbia
Special Education
B.A. 1960, D.C. Teachers College
- Herman Frederick Roebuck, District of
Columbia
School Administration
B.S. 1964, D.C. Teachers College
- Shirley Mae Sampson, Maryland
Guidance
B.S. 1946, Virginia State College
- Karla Ann Schroeder, Maryland
Elementary Education
B.A. 1967, Maryland State College,
Towson
- Martha Ann Selph, Virginia
Special Education
B.S. 1944, George Peabody College
for Teachers
- Edward Barry Serviente, New Jersey
Secondary Education
B.S. in Ed. 1964, Indiana University
- Marjorie Ann Shalin, District of
Columbia
Reading
B.A. 1967, Pennsylvania State
University
- Richard Lenhart Sprouse, Maryland
Secondary Education
B.S. in Bus.Ad. 1957, West Virginia
University
- Susan Barbara Stahl, Florida
Special Education
Ed.B. 1967, University of Miami
- Sandra Louise Stevens, Virginia
Special Education
B.A. 1963, George Peabody College
for Teachers
- Mary Margaret Teel, District of
Columbia
Secondary Education
B.A. 1962, University of Arizona
- Robert Lee Thames, Maryland
Secondary Education
B.S. 1963, University of Maryland
- Juanita Purtlebaugh Thompson,
Maryland
B.A. 1952, Shepherd College
- Julia Early Toxie, Maryland
Elementary Education
B.A. 1961, Mary Washington College
of the University of Virginia
- Martha Slaughter Turner, District of
Columbia
School Administration
B.S. 1960, D.C. Teachers College
- Rose-Miriam Vanderhoek, District of
Columbia
Secondary Education
B.A. 1967, Boston University

Alfred Philip Vogel, Maryland
Special Education
B.S. 1967, Pennsylvania State College,
West Chester
Chloe Corrine Wagner, District of
Columbia
Elementary Education
B.S. in Ed. 1956, Ohio University
Ruth Barbara Ward, Maryland
Guidance
B.S. in Sec.Sci. 1950, College
Misericordia
Joseph Charles Watson, Jr., Maryland
School Administration
B.S. 1961, D.C. Teachers College
John Robert Weimerskirch, Virginia
Secondary Education
B.A. 1952, St. John's University,
Minn.
Betty Lou Golden Wharton, District of
Columbia
Guidance
B.A. 1950, Roosevelt University

Helen Bertram Wilhelm, Maryland
Reading
B.A. in Ed. 1959, George Washington
University
Ruth Naomi Wilson, Maryland
Guidance
B.S. 1952, Tennessee Agricultural and
Industrial State University
Waylon Lloyd Wilson, Maryland
Special Education
B.S. 1964, East Carolina University
Betty Rose Young, District of
Columbia
Special Education
B.S. 1963, Maryland State College,
Bowie
Gayle R. Ziff, New Jersey
Special Education
B.S. 1967, Boston University

MASTER OF ARTS IN TEACHING

Priscilla Buck Alfandre, District of
Columbia
Elementary Education
B.A. 1949, Swarthmore College
Jane Wood Borg, Maryland
Elementary Education
B.S. 1953, University of California,
Berkeley
June Carol Bredder, New Jersey
Elementary Education
B.A. 1967, Drew University
Nancy Carolyn Briganti, Pennsylvania
Elementary Education
B.A. 1966, Elmira College
Ann Einstein Brigham, District of
Columbia
Elementary Education
B.A. 1965, Fresno State College
Kathleen Victoria Bryan, District of
Columbia
Elementary Education
B.A. 1967, George Washington
University
Kathleen Anne Cleary, New York
Elementary Education
B.A. 1967, Marymount College, N.Y.
Joseph Victor Durand, Virginia
Elementary Education
B.A. 1967, University of Maryland

Jane Marguerite Gardner, District of
Columbia
Elementary Education
B.A. 1966, George Washington
University
Sherry Irene Gauthier, District of
Columbia
Elementary Education
B.A. 1967, Vanderbilt University
Suzanne Ruth Geiger, New York
Elementary Education
B.A. 1967, George Washington
University
Mary Grant Graves, District of
Columbia
Elementary Education
B.A. 1967, Vanderbilt University
Peggy Gutman, Pennsylvania
Elementary Education
B.A. 1967, Vassar College
Mary Lynda Harriman, Vermont
Elementary Education
B.A. 1967, William Smith College
Karen Jane Long, New Jersey
Elementary Education
B.A. 1967, Drew University
Mary Josephine McAndrews, Virginia
Elementary Education
B.A. 1967, Rosemont College

Mary Kathryn Meyer, New Jersey
Elementary Education
B.A. 1967, Marymount College, N.Y.
Penny Eileen Miller, Maryland
Elementary Education
B.A. 1966, George Washington
University
Mary Anne Rankin, District of
Columbia
Elementary Education
B.A. 1966, Albion College
Gale Backer Reich, Virginia
Elementary Education
B.A. 1965, Whitman College
Sarah Busby Rice, Maryland
Elementary Education
B.A. 1964, American University
Carol Leslie Sheldon, District of
Columbia
Elementary Education
B.A. 1966, Chatham College

Margaret Simon, New Jersey
Elementary Education
B.A. 1967, Douglass College
Maria Andree Tamthai, District of
Columbia
Elementary Education
B.A. 1967, Western College for
Women
Sally Anne Taylor, District of Columbia
Elementary Education
B.A. 1967, Hope College
Elaine Sylvia Tucker, Massachusetts
Elementary Education
B.A. 1967, Boston University
Eleanor Yarnall Wells, Virginia
Elementary Education
B.A. 1945, University of Delaware
Patricia Aufenger Wilson, Maryland
Elementary Education
B.S. 1947, Northwestern University

EDUCATION SPECIALIST

Frank Martin Bliss, District of Columbia
Adult Education
B.A. 1939, Washington and Jefferson
College
Ed.M. 1948, University of Pittsburgh
Geraldine Ponte Markel, Maryland
Special Education
B.A. 1959, M.A. 1965, University of
Michigan
Edward Morris Robbins, Maryland
Guidance
B.A. in Ed. 1948, M.A. in Ed. 1949,
George Washington University
Marjorie Helen Robbins, Maryland
Guidance
B.A. in Ed., M.A. in Ed. 1948,
George Washington University

Sue Carol Tenorio, Michigan
Special Education
B.S. 1964, Eastern Michigan
University
Ed.M. 1967, Wayne State University
Ruth Morse White, District of Columbia
Guidance
B.S. 1942, Hampton Institute
M.A. 1952, New York University
Mary Elizabeth Willingham, Virginia
Guidance
B.A. 1963, Vanderbilt University
M.A. 1964, George Peabody College
for Teachers
Beth Walker Yancey, District of
Columbia
Special Education
B.A. 1964, Virginia Union University
M.A. in Ed. 1965, George Washington
University

DOCTOR OF EDUCATION

Arnold Arthur Adams, Maryland
Administration and Supervision
Dissertation: *The Training and Experience of Internal Auditors and the Scope,
Practices, and Applications of Internal Auditing in Public School Systems
Exceeding 50,000 Pupil Population*
Ed.B. 1955, Plymouth State College
M.A. 1961, American University

- Adda Mae Barrett, Maryland
 Elementary Administration
 Dissertation: *The Utilization of Instructional Aides in Public Elementary Schools in the District of Columbia and Adjacent School Systems*
 B.S. in Ed. 1949, Pennsylvania State College, Bloomsburg
 M.A. in Ed. 1950, George Washington University
- Edward Stanley Beach, Jr., Maryland
 Curriculum
 Dissertation: *A Study of a Community: Its Needs and Its Problems and Their Implications for Improvement in School Organization and Curriculum*
 B.S. 1951, Ed.M. 1957, University of Maryland
- Annie Respicio Diaz, District of Columbia
 Research and Evaluation
 Dissertation: *Factors Associated with Choice of Major in Science among Filipino Students*
 B.S. in Ed. 1954, St. Theresa's College, Manila, Philippines
 M.A. 1960, University of the Philippines
- William John Gruver, Maryland
 Administration and Supervision
 Dissertation: *Status of State Science Supervisors*
 B.S. 1938, Pennsylvania State University
 M.A. in Ed. 1951, George Washington University
- Hazel Kuhns Hershberger, Indiana
 Curriculum
 Dissertation: *A Core Library for Individualized Reading in the Elementary School: Based upon Pupil Interest Choices Identified by Teachers Recommended by a Survey of Selected Experts*
 B.A. in Ed. 1960, M.A. in Ed. 1965, George Washington University
- Jack Duane Hill, Maryland
 Administration and Supervision
 Dissertation: *An Investigation of the Utilization of Electronic Data Processing in the Teacher Employment Process*
 B.S. in Health Ed. 1950, Pennsylvania State College, Slippery Rock
 Ed.M. 1961, Pennsylvania State College, Edinboro
- Thomas William Lewis, Maryland
 Secondary Administration
 Dissertation: *An Investigation of Certain Factors which Affect the Morale of the Public School Teachers of the Shikellamy School District, Northumberland County, Pennsylvania*
 B.S. 1948, Pennsylvania State College, Bloomsburg
 M.S. 1950, Bucknell University
- Leonard Mark Orloff, Maryland
 Administration and Supervision
 Dissertation: *A Legal Analysis of Selected Rights of Pupils in the Public Schools*
 B.S. in Ed. 1949, D.C. Teachers College
 J.D. 1956, Georgetown University
 M.A. in Ed. 1961, George Washington University
- Frank Snyder, Maryland
 Administration and Supervision
 Dissertation: *The Professional Needs of Adult Basic Education Teachers in the State of Maryland*
 B.A. 1950, Shepherd College
 Ed.M. 1966, Western Maryland College

Eileen Steele, Maryland

Teacher Education

Dissertation: *An Assessment of Factors Related to Success for New Teachers Prepared at Frostburg State College with a View of Recommendation for the Improvement of the Teacher Education Program*

B.S. in 1952, Maryland State College, Frostburg

Ed.M. 1955, St. Louis University

Charles Dorsey Walters, Virginia

Teacher Education

Dissertation: *A Study of Certain Aspects of Recruitment, Admissions, and Retention of Students in Virginia Institutions Offering Undergraduate Programs in Teacher Education*

B.S. 1948, Ed.M. 1953, University of South Carolina

A.P.C. 1962, George Washington University

Orvil Ray Warner, Virginia

Guidance and Counseling

Dissertation: *The Supervision and Administration of Pupil Personnel Services by State Departments of Education*

B.S. 1956, M.S. 1957, Brigham Young University

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

Student Marshal: Kenneth Wayne Sumner

BACHELOR OF BUSINESS ADMINISTRATION

John W. Albert, District of Columbia

Accounting

Michael Amsterdam, New Jersey

Accounting

Daniel Leonard Blackstone,

Massachusetts

Business Administration

Gary Miller Brain, Pennsylvania

Business Administration

John Harry Bralove, District of

Columbia

Accounting

Paul Brickman, New York

International Business

John H. Burchett, Jr., Virginia

Business Administration

John Winthrop Chandler, Jr., Maryland

Accounting

Glenn Raymond Davis, Pennsylvania

Business Administration

Alan Harvey Dlugasch, New Jersey

International Business

Gerald James Dougherty, Virginia

Business Administration

Tina Tachino Dropkin, Virginia

Business Administration

Jeanetta Tamer Fitzgerald, Virginia

Accounting

Ralph John Fletcher, Jr., Maryland

Business Administration

Jonathan Godfrey, Connecticut

Business Administration

Walter Albert Godfrey, Jr., New Jersey

Business Administration

David Conrad Hamilton, Virginia

Business Administration

Alfred Winslow Harmon, California

Business Administration

John Michael Heyob, District of

Columbia

Business Administration

George Edward Hollendursky, District

of Columbia

Business Administration

Richard Alvin Kaplan, Maryland

Accounting

Eric Stewart Kellner, Maryland

Business Administration

Charles Albert Lachman, Connecticut

Business Administration

Ronald Werner Lasch, New Jersey

Business Administration

Kenneth Edward Lecas, Maryland

Business Administration

(With Distinction)

Donna Lee Lehrer, Rhode Island

Business Administration

James Edward Lewis, Pennsylvania

Business Administration

Gary Lee Littman, New Jersey
Accounting
Ronald Frank Londe, Missouri
Business Administration
Lorin David Luchs, District of Columbia
Accounting
Donald Douglas Lundell, Virginia
Business Administration
Bernard Leroy Lynch, Jr., Pennsylvania
Business Administration
Gregory Alan Maio, Maryland
Accounting
John Brawer Marcus, New Jersey
International Business
Michael Paul McCall, Pennsylvania
Business Administration
Norman Francis McCeney, Maryland
Accounting
B.A. in Govt. 1948, George
Washington University
George Kevin McConnell, Maryland
Business Administration
Robert Michael McCormick, Virginia
Business Administration
John Howard Murray, Virginia
Business Administration
Howard Lewis Nevin, District of
Columbia
Business Administration
Hugh William Pacella II, Virginia
Accounting
John Mitchell Philip, Texas
Business Administration
Max Joel Protetch, Ohio
International Business
Mary Lynn Ray, Virginia
Business Administration

Christina J. Recachinas, District of
Columbia
Business Administration
Robert Edward Reiver, Maryland
Business Administration
Joseph Rigutto, Maryland
Business Administration
Robert Stephen Schmidt, New York
Business Administration
Robert John Shue, Pennsylvania
International Business
Daniel Frank Sonnino, Maryland
Accounting
William Hoak Speidel, District of
Columbia
Business Administration
Charles Frederic Spurlock, Pennsylvania
Business Administration
John Michael Sullivan, Virginia
Business Administration
Kenneth Wayne Sumner, Virginia
Business Administration
(With Distinction)
Laurence James Tracy, Virginia
Business Administration
Esther Shu Wah Wang, District of
Columbia
Accounting
Loretta Ann Webb, District of Columbia
Business Administration
John Charles Wilson, District of
Columbia
Accounting
Peter Lee Wilson, Virginia
Accounting

MASTER OF ARTS IN GOVERNMENT

Mary Teaford Chambliss, Maryland
Public Administration
B.A. 1964, Roanoke College
Michael John Cole, Washington
Public Administration
B.S. 1964, South Dakota State
University
Paul Robert Dommel, Maryland
Public Administration
B.S. 1959, Georgetown University
Lawrence Joseph Dupre, Virginia
Public Administration
B.B.A. 1962, George Washington
University
LeRoy Joseph Foltz, Maryland
Public Administration
B.S. 1961, University of Oregon

Charles Peter Fossum, Venezuela
Public Administration
B.S. 1940, Iowa State University of
Science and Technology
Josei Gima, Okinawa
Public Administration
B.A. 1957, University of the Ryukyu
Islands, Okinawa
Stanley Eric Johnson, Oregon
Public Administration
B.A. 1965, Brigham Young University
Jonathan James Mitchell, Texas
Public Administration
B.A. 1966, Baylor University
Karen Lee Pease, California
Public Administration
B.A. 1964, Whitworth College

Don Steve Stephens, Oklahoma
Public Administration
B.A. 1966, University of Oklahoma

Jasper Alonzo Swim, Maryland
Public Administration
B.A. 1950, Nebraska Wesleyan
University

MASTER OF BUSINESS ADMINISTRATION

David Oladiran Akande, Nigeria
Health Care Administration
B.S. 1965, Wayland Baptist College
Frederick Gene Alkire, Indiana
International Business
B.S. 1961, Purdue University
Gerald Allen, Virginia
Business Administration
B.S. 1964, Syracuse University
James Harold Armitage, Virginia
Business Administration
B.A. 1954, University of Washington
Jonathon William Baker, California
Health Care Administration
B.A. 1962, University of Washington
Sister Xavier Ballance, Massachusetts
Health Care Administration
B.S. in Nursing 1957, St. Louis
University
Billie Gene Barnhill, Virginia
Business Administration
B.S. 1964, University of Colorado
Margaret Rose Bastnagel, Massachusetts
Health Care Administration
B.S. Nursing Ed. 1954, DePaul
University
William Joseph Bath, District of
Columbia
Business Administration
B.Gen.Ed. 1964, Municipal University
of Omaha
James Ray Beasley, District of Columbia
Business Administration
B.S. 1954, Florida State University
Kermit E. Beck, Michigan
Business Administration
B.S. in Ed. 1956, Central Michigan
University
Sister Mary Ludmilla Benda, Iowa
Health Care Administration
B.S. 1954, St. Xavier College
Robert Gordon Bidwell, Jr., Virginia
Business Administration
B.A. 1964, Brown University
Jacques Jan Blumer, New York
Health Care Administration
B.S. 1965, Marshall University
Melvin Franklin Bourne, Maryland
Health Care Administration
B.A. 1949, University of Washington

Thomas Rafter Bousquet, Virginia
Business Administration
B.A. in B.A. 1961, University of
Washington
Alvin W. Bowen, Georgia
Business Administration
B.S. 1952, Georgia Southern College
James Francis Boyle III, Wisconsin
Health Care Administration
B.A. 1962, Marquette University
Robert Lewis Bruun, Illinois
Health Care Administration
B.B.A. 1965, Loyola University, Ill.
Arnold Elliott Cares, Virginia
Accounting
B.A. 1964, George Washington
University
Margaret Vivian Carter, District of
Columbia
Business Administration
B.S. 1956, Milliken University
Edgar Shelby Causbie, Arkansas
Business Administration
B.S. 1955, U.S. Naval Academy
Joanne Delores Cerulli, Pennsylvania
Personnel Administration
B.S. 1963, Pennsylvania State College,
Shippensburg
Robert Leon Chasse, Virginia
Business Administration
B.S. 1952, College of the Holy Cross
George Arthur Cheesman, Connecticut
Business Administration
B.S. 1964, University of Connecticut
Peter Daniel Cline, Virginia
Health Care Administration
B.S. 1953, Ithaca College
M.A. in Ed. 1960, New York
University
Russell Clevon Coile, Jr., District of
Columbia
Health Care Administration
B.A. 1965, Johns Hopkins University
Gerald George Comfort, New York
Health Care Administration
B.A. 1966, George Washington
University

- Arthur Francis Crum, Jr., Maryland
Business Administration
B.A. 1956, Pennsylvania State University
- Franklin Derry Crutchfield, Texas
Business Administration
B.B.A. 1956, University of Texas
- Raymond Peter Davis, Massachusetts
Business Administration
B.S. in B.A. 1953, American International College
- Ryland Paul Davis, Virginia
Health Care Administration
B.A. 1962, Virginia Military Institute
- Edward Persons Dewey, New York
Business Administration
B.B.A. 1955, Clarkson College of Technology
- Gary Arthur Dolack, Utah
Health Care Administration
B.A. 1965, Humboldt State College
- Robert Fay Ecroyd, New York
Health Care Administration
B.A. 1965, Transylvania College
- Ralph Elikan, Pennsylvania
Health Care Administration
B.A. 1962, Vanderbilt University
- Michael Jerome Enright, Illinois
Health Care Administration
B.A. 1965, Providence College
- Lawrence Elliott Epplein, Maryland
Business Administration
B.S. 1965, University of Baltimore
- Robert LeRoy Evers, Virginia
Business Administration
B.Gen.Ed. 1965, Municipal University of Omaha
- Jack O'Dell Forgey, Virginia
Business Administration
B.A. 1957, University of Arkansas
- Paul Anthony Friedrich, Pennsylvania
Health Care Administration
B.A. 1962, Georgetown University
- Glenn Leslie Gaddis, Minnesota
Business Administration
B.A. 1964, U. S. Naval Postgraduate School
- John Michael Gardella, Virginia
Business Administration
B.A. 1958, Catholic University of America
- Sidney Solomon Gelb, Maryland
Business Administration
B.B.A. 1961, University of Pittsburgh
- Norman Richard Gerlich, Jr., Texas
Business Administration
B.B.A. 1953, Texas A&M University
- Kenneth George Glozer, Virginia
Accounting
B.S. 1963, West Virginia University
- Edward Joseph Gottsman, New Jersey
Business Administration
B.A. 1961, Fordham University
M.A. 1962, Harvard University
- David Patrick Graham, Florida
Business Administration
B.S. 1965, U.S. Naval Academy
- Lawrence Graham, Illinois
Business Administration
B.S. 1957, University of Illinois
- Gary Eugene Hahn, Nebraska
Business Administration
B.S. in B.A. 1956, University of Nebraska
- Robert Gene Hankins, Ohio
Health Care Administration
B.A. 1963, Butler University
- Philip Barrett Holtwick, Virginia
Health Care Administration
B.B.A. 1958, Georgia State College
- Roger Schermerhorn Hunt, Pennsylvania
Health Care Administration
B.A. 1965, DePauw University
- Douglas Richard Johnson, Virginia
Business Administration
B.A. in Govt. 1952, George Washington University
- Oliver Warren Johnson, Jr., Colorado
Business Administration
B.S. 1949, University of Colorado
- Harry Raymond Jordan, Virginia
Business Administration
B.S. 1966, Mount St. Mary's College, Md.
- Carl Frederic Juncker, Virginia
Business Administration
B.B.A. 1956, University of Texas
- George Patrick Kane, Washington
Business Administration
B.S. in Gen.Std. 1968, George Washington University
- Robert Henry Kaulbach, Connecticut
Business Administration
B.B.A. 1959, Fairfield University
- Glenn David Kelly, Jr., Louisiana
Business Administration
B.S. 1959, Louisiana State University
- Ronald Charles Kelly, New York
Health Care Administration
B.B.A. 1965, University of Massachusetts
- Neil Forrest Kendall, Ohio
Business Administration
B.S. 1958, U.S. Coast Guard Academy

- Peter Kern, District of Columbia
Business Administration
B.B.A. 1967, George Washington University
- Gary Philip Kraus, Texas
Health Care Administration
B.A. 1966, Tulane University of Louisiana
- Robert Thomas Laycock, New York
Accounting
B.B.A. 1965, George Washington University
- Frank Hitchcox Learned, Jr., Indiana
Health Care Administration
B.A. 1965, Miami University
- Richard Brown Ledbetter, New Jersey
Health Care Administration
B.S. in Phar. 1950, Mercer University
- Lawrence Ralph Lesiger, New York
Health Care Administration
B.A. 1965, City College, New York
- Austin Kellett Letson, Jr., Kentucky
Health Care Administration
B.A. 1961, Davidson College
- Mark Mayer Levin, Connecticut
Business Administration
B.S. 1966, University of Connecticut
- Robert Harry Lichtenberg, Maryland
Business Administration
B.A. 1959, Ohio University
- Warren Junior Lodge, Illinois
Business Administration
B.Gen.Ed. 1962, Municipal University of Omaha
- Max Lee Lybarger, Virginia
Health Care Administration
B.A. 1958, Nebraska Wesleyan University
- Edwin Arthur Machen, Jr., Ohio
Business Administration
B.S. 1938, U.S. Military Academy
- Clarence Albert Mangold, Jr., Virginia
Business Administration
B.B.A. 1953, St. Mary's University of San Antonio
- Edward Lee Marvin, Pennsylvania
Business Administration
B.S. in Ed. 1961, Pennsylvania State College, Mansfield
- Mark Alexander McBriarty, District of Columbia
Business Administration
B.S. 1959, St. Joseph's College, Pa.
- Peg Orem McCuiston, Maryland
Health Care Administration
B.B.A. 1963, Southwest Texas State College
- Francis Edward McDonald, Massachusetts
Business Administration
B.S. 1952, U.S. Naval Academy
- Robert Woodworth McKenzie, District of Columbia
Accounting
B.S. 1961, Florida Southern College
- Carl Alton McKinney, Jr., Virginia
Business Administration
B.B.A. 1957, Baylor University
- Eugene Joseph McPartland, New York
Business Administration
B.S. 1956, U.S. Naval Academy
B.S. in C.E. 1960, Rensselaer Polytechnic Institute
- William Mason Milligan, Jr., New Jersey
Health Care Administration
B.S. 1964, Illinois College
- Steven William Mintz, New York
Health Care Administration
B.A. 1964, City College, New York
- Barry Randolph Mintzer, New York
Health Care Administration
B.S. in B.A. 1965, Ohio State University
- Douglas George Murphy, Virginia
Business Administration
B.S. 1955, Concord College
- John Donald Murray, Virginia
Business Administration
B.S. 1955, University of Notre Dame
- Robert Leo Normand, Virginia
Business Administration
B.S. in Acct. 1952, Bryant College
- Harvey Steele Oelkers, Virginia
Business Administration
B.B.A. 1952, Tulane University of Louisiana
- James Lawrence Oosterhous, Maryland
Business Administration
B.S. 1961, University of Maryland
- Jesse Franklin Pearson, North Carolina
Health Care Administration
B.S. 1965, Davidson College
- Sister Mary Frances Polowniak, Connecticut
Health Care Administration
B.A. 1964, College of Our Lady of the Elms
- Richard Ray Rankin, Virginia
Business Administration
B.S. 1960, University of Kentucky
- Heman Judd Redfield III, Virginia
Business Administration
B.S. 1950, University of Virginia

- Edmund Joseph Regan, New Jersey
Business Administration
B.S. 1952, Seton Hall University
- Victor Hugo Roig, Costa Rica
Health Care Administration
B.A. 1964, University of Costa Rica
- William Alfred Romaine, Virginia
Business Administration
B.A. 1953, Trinity College, Conn.
- Paul Nicholas Romani, New Jersey
Business Administration
B.B.A. 1967, George Washington University
- Edwin John Sabec, Virginia
Business Administration
B.S. 1952, U.S. Naval Academy
- Theodore A. Scharfenstein, Jr., Florida
Health Care Administration
B.S. 1961, Florida Southern College
- David Michael Schor, Maryland
Health Care Administration
B.S. 1964, Tufts University
- Richard Louis Schwalber, Virginia
Business Administration
B.S. 1963, Pfeiffer College
- James Franklin Scott, Virginia
Business Administration
B.S. 1954, North Carolina State University at Raleigh
- Robert Louis Sfreddo, Virginia
Business Administration
B.A. 1964, Chapman College
- Gene Terry Sherron, Virginia
Business Administration
B.S. in B.A. 1953, University of Florida
- Stephen Allen Sind, Connecticut
International Business
B.A. 1965, University of Vermont
- Donald Smith, Virginia
Business Administration
B.S. in Ed. 1961, Pennsylvania State College, Bloomsburg
- Edward Charles Solomon, Florida
Business Administration
B.A. 1957, Brooklyn College
- John Marion Stone, Tennessee
Health Care Administration
B.S. 1965, Austin Peay State College
- James Studnicki, Pennsylvania
Health Care Administration
B.S. 1965, University of Pittsburgh
- Barry Stupine, Pennsylvania
Health Care Administration
B.S. 1964, Temple University
- John Sullivan, Illinois
Business Administration
B.A. 1958, Loras College
- Alfred Carl Taves, Virginia
Business Administration
B.A. 1960, University of Maryland
- George Edwin Taylor, Virginia
Personnel Administration
B.S. 1952, Clemson University
- Sidney Jean Teaford, Virginia
Business Administration
B.S. 1952, University of Kansas
- Thomas Tracy Tibbetts, California
Health Care Administration
B.S. 1960, University of California, Berkeley
- Joseph Francis Turner, Ohio
Health Care Administration
B.S. 1963, Gannon College
- George Edgar Ude, Jr., Arizona
Health Care Administration
B.S. in Phar. 1951, University of Arizona
- Charles Brian Van Vorst, Indiana
Health Care Administration
B.S. 1966, Evansville College
- Loyd Hollis Weathers, Tennessee
Health Care Administration
B.S. 1953, University of Tennessee
- James Arthur Weaver, Jr., Virginia
Business Administration
B.S. 1954, University of Alabama
- John Calvin Webster, Colorado
Business Administration
B.S. in I.M. 1954, Georgia Institute of Technology
- Richard Melvin Weiss, Pennsylvania
Health Care Administration
B.A. 1965, Franklin and Marshall College
- Perry Kenneth Whiteside, Virginia
Health Care Administration
B.B.A. 1964, George Washington University
- Rex Williams, Virginia
Business Administration
B.A. 1961, McMurry College
- John David Wills, Pennsylvania
International Business
B.B.A. 1966, George Washington University
- William Neal Winters, Alabama
Business Administration
B.Aero.Adm. 1960, Auburn University

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

- Donald Joseph Carbone, Maryland
B.A. 1953, University of Notre Dame
- John Joseph Foran, Virginia
B.S. 1955, U.S. Naval Academy
- David Dalton Francis, Pennsylvania
B.S. 1951, The Citadel
- Thomas Erwin Hurt, Alabama
B.S. 1956, Indiana University
- George Alexandric Jacob, New York
B.A. 1961, George Washington University
- Joseph Matthew Jones, Virginia
B.A. 1955, George Washington University
- John Edwin Mock, Virginia
B.S. 1947, U.S. Military Academy
B.S. in Ch.E., M.S. in Ch.E. 1950,
Ph.D. 1960, Purdue University
M.S. in I.A. 1966, George Washington University
- Dorward Weston Ogden, Jr., Virginia
B.S. in Mil.Sci. 1959, University of Maryland
- Jerry Lee Patterson, Pennsylvania
B.A. 1956, Willamette University
- Donald James Robinson, North Carolina
B.A. 1938, University of North Carolina
- Charles Roscoe Sheldon, Alabama
B.A. 1964, University of Alabama
- Grady Lee Smallwood, Maryland
B.S. 1952, Texas A&M University
- George Henry Wilson, Rhode Island
B.S. 1950, University of Illinois

MASTER OF SCIENCE IN FINANCIAL MANAGEMENT

- Benedict Joseph Allison, Jr., Maryland
B.A. 1958, Johns Hopkins University
- William Russell Bartow, Virginia
B.S. 1948, U.S. Naval Academy
B.S. 1954, M.S. 1955, U.S. Naval Postgraduate School
- Charles Theodore Boylan, Michigan
B.A. 1958, University of Michigan
- Edward Paul Brunner, Maryland
B.S. 1962, Loyola College
- Randall Charles Carll, Maryland
B.S. in Ch.E. 1955, University of Notre Dame
B.S. 1965, U.S. Naval Postgraduate School
- Sheldon Philip Cohen, Maryland
B.S. 1950, Johns Hopkins University
LL.B. 1954, University of Maryland
- Robert Lee Collingsworth, Maryland
B.S. 1956, University of Baltimore
- Donald George Coppersmith, Maryland
B.S. in I.E. 1954, Lehigh University
- Kenneth Gordon Davis, Maryland
B.A. 1957, Bucknell University
- Jerome Edward Dyba, Maryland
B.S. 1965, University of Baltimore
- John Robert Eikenberg, Maryland
B.S. 1963, Rutgers, the State University
- John Robert Eshman, Maryland
B.S. 1952, U.S. Naval Academy
M.S. 1959, U.S. Naval Postgraduate School
- John Charles Gartland, South Carolina
B.S. 1963, Villanova University
- Frank James Guillott, Maryland
B.B.A. 1961, University of Notre Dame
- Joseph Emil Hoker, Maryland
B.S. 1941, U.S. Naval Academy
- Rose Hardin Jensen, Virginia
B.A. 1962, Randolph-Macon Woman's College
- David Elmer Jeremiah, Oregon
B.S. 1955, University of Oregon
- Thomas Cranston Kensler, Jr., Ohio
B.A. 1966, George Washington University
- William Bentley Kern, Virginia
B.S. 1934, U.S. Military Academy
- Alfred Kurzenhauser, Virginia
B.S. 1951, Webb Institute of Naval Architecture
M.S. 1961, U.S. Naval Postgraduate School
- Donald Norris McCulloh, Sr., Maryland
B.S. in B.A. 1961, The Citadel
- Richard Vance Miles III, Maryland
B.S. in Forestry 1958, Auburn University
- Siegbert Horst Neuhof, Maryland
B.S. 1956, Johns Hopkins University
- John Albert Norville, Maryland
B.I.E. 1958, North Carolina State University at Raleigh

Robert Bentley Offutt, Maryland
B.A. 1960, Lehigh University
Robert Barry Rickard, Maryland
B.S. 1963, Boston University
John Kenneth Ryder, Virginia
B.S. 1947, U.S. Naval Academy

Richard Thomas Shigley, Ohio
B.S. 1956, U.S. Naval Academy
Fredric Michael Vann, Mississippi
B.Ind.Mgt. 1959, Auburn University

MASTER OF SCIENCE IN GOVERNMENTAL ADMINISTRATION

Euell Ben Baccus, Montana
B.S. in B.A. 1959, University of
Southwestern Louisiana
Clifford Judson Bobo, Maryland
B.S. in Ed. 1963, Georgia Southern
College
Edward Russell Coady, Maryland
B.S. 1960, Loyola College
Robert Ashley Condon, Maryland
B.A. 1959, Belmont Abbey College
Max Louis Davidson, Maryland
B.A. 1958, University of Maryland
Mitchell Keith Disney, New Hampshire
B.A. 1941, Washington and Lee
University
LL.B. 1947, Harvard University
Edward Raymond Gardner, Maryland
B.A. 1957, San Jose State College
James Edgar Geyer, Maryland
B.E. 1951, Johns Hopkins University

Wade Doran Hall, Virginia
B.B.A. 1965, George Washington
University
Jack Tracy Henderson, Maine
B.A. 1966, George Washington
University
John Frederick Kirby, District of
Columbia
B.S. 1931, University of Maryland
Arthur John Martin, Maryland
B.S. 1959, Spring Hill College
Charles Harrison Parker, Maryland
B.B.A. 1947, LL.B. 1950, University
of Miami
Francisco Perez-Cruz, Maryland
B.A. 1953, University of Puerto Rico
William Thomas Piteleski, Maryland
B.S. 1962, Fairmont State College
John Harry Wiand, Virginia
B.A. 1962, Gannon College

MASTER OF SCIENCE IN PERSONNEL ADMINISTRATION

Andrew Herbert Anderson, Florida
B.A. 1963, Park College
Daniel Francis Anglim, Jr., Virginia
B.S. 1950, U.S. Merchant Marine
Academy
Ingvard Bach, Maryland
B.S. 1964, University of Maryland
Helen Cantrell Beach, District of
Columbia
B.A. 1940, Texas Technological
College
Bruce Wesley Bidwell, Connecticut
B.S. 1954, U.S. Military Academy
Matthew Joseph Breen, Maryland
B.S. 1951, U.S. Naval Academy
Robert Vincent Brown, Virginia
B.A. 1957, St. Charles Borromeo
Seminary
S.T.B. 1959, St. Mary's Seminary
and University
Donald Barson Conaty, Maryland
B.S. 1957, U.S. Naval Academy

Jack Lawrence Conway, New York
B.A. 1960, M.A. 1961, State University
of New York at Albany
Charles Eugene Cosky, California
B.S. 1959, U.S. Naval Academy
Mildred Williams Cox, Maryland
B.A. 1956, Emory University
Russell Udellius Crosby, Virginia
B.S. 1961, U.S. Naval Postgraduate
School
Edmund Czapski, Virginia
B.Gen.Ed. 1962, Municipal University
of Omaha
Howard Donald DeLude, Wyoming
B.S. 1960, U.S. Naval Academy
Robert Devieux, Maryland
B.S. in M.E. 1960, University of
Puerto Rico
John Joseph Dohony, Jr., Maryland
B.S.(S.S.) 1951, Georgetown
University

- John Jacob Ferguson, California
B.A. 1960, California Western University
- Louis Edward Flaig, Jr., Maryland
B.S. 1952, University of Maryland
- Walter Ernest Gebser, Virginia
B.S. in Ch.E. 1942, Rice University
- Thomas Joseph Goodall, Virginia
B.S. 1961, Spring Hill College
- Herman Brooks Handy, Maryland
B.A. 1956, Wheaton College, Ill.
- Charles Wesley Harper, Pennsylvania
B.A. 1966, University of Maryland
- Sylvester John Henkel, Jr., Maryland
B.S. 1956, University of Baltimore
- James Robert Herd, Virginia
B.S. 1963, U.S. Military Academy
- John Joseph Higginson, Maryland
B.A. 1954, St. Mary's Seminary and University
B.S. in Meteorology 1966, U.S. Naval Postgraduate School
- Carl Dewey Hopkins, Jr., Maryland
B.A. 1962, George Washington University
- Robert Edward Johannesen, Nebraska
B.S. 1960, U.S. Naval Academy
- Colin Todd Kagel, Connecticut
B.S. 1964, U.S. Naval Academy
- Chris Louis Katsetos, Rhode Island
B.S. 1966, University of Rhode Island
- Emery Elam Kellstrom, Maryland
B.S. in Mil.Sci. 1957, University of Maryland
M.S. 1962, Virginia Polytechnic Institute
- David Armstrong Kelly, Texas
B.A. 1952, University of North Carolina
- Robert Anthony Koger, Virginia
B.A. 1964, Ohio Northern University
- Charles John Kovarik, Maryland
M.E. 1955, Stevens Institute of Technology
- Charles Bernard Lamdin, Jr., Maryland
B.S. 1963, University of Baltimore
- David Wood Lamott, Maryland
B.A. 1957, Pomona College
- Allen Herbert Light, Jr., Pennsylvania
B.S. 1951, Lebanon Valley College
- Elmer Joseph Linthicum, Maryland
B.S. 1959, Loyola College
- Charles Wood Lyman III, Maryland
B.S. 1961, U.S. Naval Academy
- John Herman McCalla, Virginia
B.S. 1939, Oklahoma State University of Agriculture and Applied Science
- Charles Neal McKinney, District of Columbia
B.A. 1960, University of Texas
- Charles Luther Mitchell, Jr., Maryland
B.A. 1961, Western Maryland College
- Frederick Leonard Neesemann, Maryland
B.I.E. 1960, Georgia Institute of Technology
- George Elmer Nuber, Jr., Pennsylvania
B.S. 1947, Villanova University
- Reid Hubert Olson, Maryland
B.S. 1958, U.S. Naval Academy
- Joseph Francis Perez, New York
B.S. 1955, U.S. Naval Academy
- Donald Kirby Poole, Maryland
B.S. 1963, Virginia Polytechnic Institute
- Richard Edward Powell, Virginia
B.S. 1955, Wake Forest College
- Robert Grant Rettie, New York
B.A. 1950, Syracuse University
- Robert Joseph Ross, Maryland
B.S. 1961, U.S. Naval Academy
- James Kenneth Scott, Maryland
B.S. in E.E. 1951, University of Maryland
- Joseph Benedeck Starker, Virginia
B.B.A. 1950, University of Houston
- Neil Alan Stein, Maryland
B.A. 1961, American University
- Gerhardt William Strohsacker, Maryland
B.A. 1951, Washington College
B.S. 1961, Johns Hopkins University
- James Franklin Thacker, Virginia
B.A. 1960, University of Richmond
- Harold Tupper Thompson, Virginia
B.A. 1964, George Washington University
- Michael Francis Treacy, Maryland
B.S. 1960, U.S. Naval Academy
- Robert Walter Van Kirk, Jr., Virginia
B.S. 1948, U.S. Naval Academy
- George Frederick Vaughan, North Dakota
B.S. in M.E. 1936, University of North Dakota
- Lester Frederick Wagner, Jr., Maryland
B.S. 1962, Johns Hopkins University
- Donald Robert Wheeler, Texas
B.S. 1960, U.S. Naval Academy

MASTER OF SCIENCE IN PUBLIC ADMINISTRATION

Joseph Leo Vogel, Ohio
 B.S. in Ed. 1955, Ohio State
 University

DOCTOR OF BUSINESS ADMINISTRATION

Laurence Ray Brown, Virginia
 Business Administration
 Dissertation: *Development of Federal Antitrust Practices and Effect upon Small Business*
 B.S. in Engr. 1949, George Washington University
 LL.B. 1951, Rutgers, the State University
 M.S. in E.E. 1958, University of Pennsylvania

Charles Stephen Bunker, District of Columbia
 Business Administration
 Dissertation: *A Study to Determine the Impact of Unionization and the Threat thereof on New York City's Voluntary, Nonprofit Hospitals: 1959 to 1966*
 B.S. in B.A. 1958, Bowling Green State University
 M.B.A. 1961, Indiana University

John Smith Herrick, Kentucky
 Business Administration
 Dissertation: *A Comparison of the Perceptions of Needs Fulfillment and of Their Importance to Government Executives*
 B.S. in Ch.E. 1940, Michigan State University
 M.B.A. 1960, George Washington University

Paul Francis Murray, Pennsylvania
 Business Administration
 Dissertation: *An Economic Evaluation of Relative Posted Crude Oil Prices in the International Petroleum Industry with Special Reference to Africa and the Middle East*
 B.B.A. 1962, University of Oklahoma
 M.B.A. 1965, George Washington University

John Francis Regan, Maryland
 Business Administration
 Dissertation: *The Relationship between Dogmatism and Productivity, Accuracy, and Satisfaction in Telephone Operators: An Investigation*
 B.S. 1939, Harvard University
 M.B.A. 1962, George Washington University

DOCTOR OF PUBLIC ADMINISTRATION

Cho Chang-hyun, Maryland
 Public Administration
 Dissertation: *The System of Local Government in South Korea as Affected by Patterns of Centralized Control*
 LL.B. 1958, Yonsei University, Seoul, Korea
 M.A. 1963, American University

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Student Marshal: Rosalind Ann Bresnehan

BACHELOR OF ARTS

- | | |
|--|---|
| Barbara Jeanne Alper, New York | Doris Elizabeth Keller, Maryland |
| International Affairs | International Affairs |
| Ethel Angeline Attena, New York | Timothy James Kielty, Nebraska |
| International Affairs | Public Affairs |
| (With Distinction) | Alan Robert Kooney, District of |
| Richard Bloch, Maryland | Columbia |
| Public Affairs | Public Affairs |
| Jeffrey Clayman Bloom, New York | Arthur Michael Kravetz, Massachusetts |
| International Affairs | International Affairs |
| Stuart John Brahs, Maryland | John Richards Leaning, Virginia |
| International Affairs | International Affairs |
| Rosalind Ann Bresnehan, New Jersey | Bradley Bernard Lindsey, Virginia |
| International Affairs | International Affairs |
| (With Distinction) | Ronald Forrest Locker, District of |
| Helen Stephanie Chase, District of | Columbia |
| Columbia | International Affairs |
| International Affairs | Delmer Emmanuel Lonowski, Nebraska |
| Paula Jeanne Choate, District of | International Affairs |
| Columbia | Susan Katherine Lorenz, Virginia |
| International Affairs | International Affairs |
| Larry Brian Cornish, New York | (With Distinction) |
| International Affairs | Gail Elaine McLaughlin, California |
| Carol Ruth Cushing, Illinois | International Affairs |
| International Affairs | Brian Robert Mitchell, New York |
| John Leslie Davie, Connecticut | International Affairs |
| International Affairs | Linda Lu Moore, Florida |
| Eleanor Ann Dibala, New York | International Affairs |
| International Affairs | Jane Denison Morris, Ohio |
| Patricia Michele Dintaman, Virginia | International Affairs |
| International Affairs | Victoria Carolyn Murray, Virginia |
| Robert Richard Froude, Pennsylvania | International Affairs |
| International Affairs | John Patrick O'Hagan, New York |
| Georgia Goodwillie, Illinois | International Affairs |
| International Affairs | Mary Ruth O'Hara, Virginia |
| Richard Ashton Grymes, Maryland | International Affairs |
| International Affairs | Angelina Mahlon Painter, South Carolina |
| Sandra Claire Harper, District of | International Affairs |
| Columbia | Ronald Bernard Poock, Massachusetts |
| International Affairs | Public Affairs |
| Howard Vernon Hayghe, Maryland | Honey Harlene Reiken, New York |
| International Affairs | International Affairs |
| Liam Jackson Humphreys, France | Lois Katherine Ribich, Minnesota |
| International Affairs | International Affairs |
| Audrey Yoshie Ichinose, Hawaii | Virginia Louise Rieth, Ohio |
| International Affairs | International Affairs |
| (With Distinction) | Husain Ali Saif, District of Columbia |
| Edwin H. Jorgensen, Iowa | International Affairs |
| Public Affairs | Joseph William Siegel, New York |
| Ellen Lee Kavner, District of Columbia | International Affairs |
| International Affairs | Jeanne Marie Stanek, Pennsylvania |
| | International Affairs |

Charles Gerald Stubbs, Georgia International Affairs	Anne Davis Ware, Virginia International Affairs
Stephen Pinkerton Swem, Pennsylvania International Affairs	Paul Richard Webster, New York International Affairs
Amalia Vellianitis, District of Columbia International Affairs	Elaine Ruth Witman, New Jersey International Affairs
Detta Voesar, District of Columbia Public Affairs	William MacIver Yarmy, New York International Affairs
Ronald Patrick Walker, District of Columbia International Affairs	

MASTER OF ARTS

Richard Henry Adamson, Maryland International Affairs B.A. 1957, Drake University M.S. 1959, Ph.D. 1961, University of Iowa	Christine Carol Hardinger, Washington International Affairs B.A. 1966, Washington State University
Richard Dean Anderson, District of Columbia International Affairs B.A. 1963, Grinnell College	Howard Francis Heyman, Massachusetts International Affairs B.A. 1966, University of Massachusetts
Stephen Louis Bayer, Pennsylvania International Affairs B.A. 1966, Franklin and Marshall College	Arthur John Laemmerzabl, District of Columbia Economic Policy B.S. 1956, Purdue University
Robert Lawrence Borosage, Michigan International Affairs B.A. 1966, Michigan State University	Maryanne Dorothy Lomberger, District of Columbia International Affairs B.A. 1966, Indiana State University
Floyd Clarence Buell, Virginia International Affairs B.A. 1967, George Washington University	Wayne George Schiebel, Virginia International Affairs B.A. 1966, George Washington University
Diane Szostak Dupin, New York International Affairs B.A. 1965, George Washington University	Elwin Lloyd Skiles, Jr., Texas International Affairs B.A. 1963, Baylor University
Mae Handy Esterline, District of Columbia International Affairs B.A. 1943, University of California, Los Angeles	Vasilios Demetrius Soulios, District of Columbia International Affairs B.A. in Govt. 1964, George Washington University
Stuart Greenberg, Alabama International Affairs B.A. 1966, University of Alabama	Gary Dean Vestermark, Virginia International Affairs B.A. 1966, University of California, Berkeley
	Alexander Mulqueen Weyand, New York International Affairs B.S. 1951, U.S. Military Academy

MASTER OF ARTS IN INTERNATIONAL AFFAIRS

John Gordon Fifield, Virginia
B.A. 1942, Colby College

MASTER OF SCIENCE IN INTERNATIONAL AFFAIRS

Vernon Kinney Cammack, Virginia B.A. 1949, University of Minnesota	Vito Santo Pedone, Virginia B.S. in Mil.Std. 1966, University of Maryland
Charles Alexander Darrah, Virginia B.A. 1949, Vanderbilt University	Clifford Eugene Raisor, District of Columbia B.S. 1959, Florida State University
Joe Douglas Faull, Virginia B.S. 1945, University of Minnesota	James Glenn Randolph, Virginia B.S. 1962, University of Michigan
Robert Haldane, New Jersey B.S. 1947, U.S. Military Academy	Carl Edward Schmidt, California B.S. 1958, University of Maryland
Robert Poole Hanson, Rhode Island B.S. 1955, University of Idaho	Owen Wesley Siler, Virginia B.S. 1943, U.S. Coast Guard Academy
Henry Clement Hatchell, Massachusetts B.A. 1942, University of New Hampshire	John Granville Tillson, California B.S. 1951, U.S. Naval Academy
M.B.A. 1948, Harvard University	Albert Anthony Tisone, Virginia B.S. 1952, M.B.A. 1956, University of Maryland
Humphrey Baylor Lansden, Louisiana B.S. 1947, U.S. Naval Academy	D.B.A. 1966, George Washington University
John Lee Mohl, Virginia B.A. 1961, George Washington University	

COLLEGE OF GENERAL STUDIES

Student Marshal: William Holmer Crane

ASSOCIATE IN ARTS

Kathleen Hopkins Arnold, Virginia Accounting	Doris Mary Scott, Virginia Joyce Spence Walters, Virginia
Charles Benjamin Johnson, Jr., Virginia	

BACHELOR OF ARTS

Warren Denton Albin, Jr., Maryland Social Sciences	William Patrick Holden, Virginia Social Sciences
Donald Austin Anderson, Virginia Social Sciences	Patrick Edward Hughes, District of Columbia Languages and Literatures (With Distinction)
Richard James Bulmahn, Virginia Social Sciences	Gray Walton Hume III, Virginia Social Sciences
Robert Lee Busby, Jr., Virginia Social Sciences	Donald Leroy Jackman, Virginia Social Sciences
Olaf Cimermanis, District of Columbia Languages and Literatures	Barbara Minor Kingman, Virginia Natural Sciences
Anastasios T. Cokenias, Maryland Natural Sciences	James Robert Lassiter, Virginia Natural Sciences
William Holmer Crane, Florida Social Sciences (With Distinction)	Norbert Urban Linder, Pennsylvania Social Sciences
Richard Joseph Downs, Virginia Social Sciences	William Lee Long, Maryland Social Sciences
Rosemary English, District of Columbia Social Sciences	John Richard Mayher, Virginia Social Sciences
James Bennett Gilstrap, Virginia Social Sciences	William Francis McCullough, Maryland Social Sciences
Catherine Bowman Green, Maryland Social Sciences	

Frank Ellis McKenzie, Virginia
Social Sciences
John Edward Pavlick, Pennsylvania
Social Sciences
Charles Jack Rose, Virginia
Social Sciences
James Richard Sanderson, Virginia
Social Sciences

George Howard Shutt, Jr., Virginia
Languages and Literatures
Rene Maitland Thierry, Virginia
Social Sciences
John Max Thomas, Illinois
Social Sciences
Arthur Meredith Williamson, Virginia
Social Sciences

BACHELOR OF SCIENCE IN GENERAL STUDIES

Lynn Wade Adams, Arkansas
Political Science
Edward Bobola, Pennsylvania
Business Administration
William Guy Coulter, Washington
Political Science
Carl Mann Cruse, Virginia
Political Science
Robert Milehame Davis, California
Business Administration
John Douglas De Laughter, Oklahoma
Business Administration
Gene Lee Hammett, Mississippi
Business Administration
John Elbert Hendren, North Carolina
Business Administration
Edward Franklin Hufstедler, Virginia
Political Science
John Henry Iarrobino, Virginia
Mathematics
Alfred Carl Johnson, Jr., Illinois
Business Administration
George Patrick Kane, Washington
Business Administration
John Randall Kincaid, Virginia
Business Administration
David Arthur Long, Virginia
Political Science
William Otis McDaniel, Texas
Business Administration

Patrick Holmes Moore, Virginia
Business Administration
William Edwin Moore, Maryland
Business Administration
Virgil Watson Oglesby, Virginia
Business Administration
Ivan Bentley Owen, Florida
Business Administration
Richard Raymond Renaldi, Virginia
Political Science
Lyle Henry Sette, Virginia
Political Science
John Lawson Sims, New York
Business Administration
Barclay Wilmot Smith, California
Business Administration
Angelo Fortunato Spano, Maryland
Business Administration
Charlie Yancey Talbott, Maryland
Political Science
James David Taylor, Virginia
Business Administration
Theodore Wylie Troy, Virginia
Business Administration
John Randolph Turner, Virginia
Business Administration
Ruger William Winchester, Connecticut
Political Science
Clifton Bernard Wingate, South
Carolina
Political Science

BACHELOR OF SCIENCE IN GEODETIC AND CARTOGRAPHIC SCIENCE

James Robert Barrett, Virginia
Donald Leroy Light, Virginia

John Edward Unverferth II, Virginia

Honorary Degrees

WINTER CONVOCATION, FEBRUARY 22, 1968

DOCTOR OF LAWS

George Winchester Stone, Jr.

DOCTOR OF SCIENCE

Vincent du Vigneaud

ANNUAL COMMENCEMENT, JUNE 2, 1968

DOCTOR OF LAWS

Kingman Brewster, Jr.

Jacob Wilbur Ehrlich

DOCTOR OF LETTERS

Helmut Anthony Hatzfeld

RECIPIENTS OF AWARDS 1967-68

FELLOWSHIPS, ASSISTANTSHIPS, TRAINEESHIPS

Graduate School of Arts and Sciences Fellowships: Anne J. Banks, B.A.; Anne H. Benson, B.A.; Martin B. Cohen, M.A.; Garry M. Crane, B.A.; Elayne Z. Gardstein, B.A.; Solveig Ingersoll, M.A.; Yves Van den Branden, M.A.

Graduate School of Arts and Sciences Summer Fellowships: Jackson C. Boswell, M.A.; Martin B. Cohen, M.A.; Garry M. Crane, B.A.; James L. Kirkman, B.A.; Margot D. Ormes, B.A.; Samuel Trychin, Jr., M.A.

Graduate Teaching Assistantships:

Accounting: Thomas W. Metz, Jr., B.B.A.; Thomas E. Richards, B.B.A.

Art: Renato G. Danese, B.A.; Elizabeth T. de Mowbray, B.A.

Biological Sciences: Dwight P. Blankenbaker, B.S.

Business Administration: Charles A. Ashley, B.B.A.; Wallace R. Johnston, B.B.A.; Norma M. Loeser, B.A.; David M. Maytnier, B.A.; Paul N. Romani, B.B.A.

Business Administration - Air Force Advanced Management Program: Donald Rabinovitch, B.B.A.

Business Administration - Navy Graduate Financial Management Program: Richard D. Gnodde, B.A. in Ed.

Chemistry: Javher V. Advani, M.S.; John L. Goodrow, B.A.; Susan S. Grace, B.S.; Graham Gross, B.S.; Tse-Hong Lin, B.S.; Watson T. Scott, B.A.

Economics: George O. Driscoll, Jr., B.A.; David R. Essig, B.A.; John E. Folds, B.A.; Wolfgang P. Kuhn, B.A.; George J. Weeden, Jr., B.A.

Electrical Engineering: Anthony G. Adams, M.S. in E.E.; John M. Saunders, B.E.E.; Martin Wolk, B.S.; Robert M. Zeskind, B.S. in Engr.

English: Sylvia R. Browne, B.A.; Chandler M. Tagliabue, B.A.; Thomas S. Willard, B.A.

French: Madeleine M.G. Soudee, B.A.

Geography: Mark M. Newland, B.A.

Geology: Simon M. Cargill, B.S.; Ruth A. Davis, B.A.; Carol L. Ekstrom, B.S.; Harry J. Goett, B.S.; Raymond T. Rye II, B.S.; George C. Stephens, B.S.

German: Hanna Marks, B.A.

History: Norma S. Frankford, B.A.; William M. Maury, B.A.; Nancy J. Skon, B.A.; William C. Weneta, B.A.

International Affairs: Edward W. Gnehm, Jr., B.A.; Denis D. Gray, B.A.; Maryanne D. Lomberger, B.A.; Neil N. Seldman, B.S.; Susan B. Tepper, B.A.

Mathematics: Carl H. Baker, B.S., M.A.T.; Kim K. Butler, M.S.; Arthur Gardner, B.A.; Lawrence A. Lee, B.S.; David R. Slack, B.S.; Pamela J. Taylor, M.A.

Physical Education for Men: Desmond F. Gatti, B.S. in P.E.; Joseph F. Lalli, B.S. in P.E.

Physical Education for Women: Donna C. Holt, B.A.

Physics: Jesse D. Wall, B.S.

- Psychology*: Laura G. Broedling, B.A.; Jonathan Kahane, B.A.; Elyse B. Lehman, B.A.; Marcia D. Minichiello, B.A.; Widson C. Pittman, B.A.; Alex Rode, B.A. in Govt.
- Russian*: Maria I. Soukhanov, B.A.
- Sociology*: Judith D. Kadish, B.A.
- Spanish*: Rodica Fligler, B.A.; Margot D. Ormes, B.A.
- Speech Pathology and Audiology*: Patricia A. Cross, B.A.; Elayne S. Dorf, B.A.; Lorraine W. Eskew, B.A.; David L. McPherson, B.S.
- Statistics*: Basil L. Hamilton, Jr., B.A. in Ed.; Karen D. Kiracofe, B.A.
- Institute for Sino-Soviet Studies-International Affairs Fellowships*: Hong-Kyoon An, B.A.; Leonard D. Gerson, B.A. in Govt.
- W. K. Kellogg Foundation Fellowships*: Philip N. Reeves, M.B.A.; Stephen L. Tucker, M.B.A.; Jack W. White, M.B.A.
- Isabella Osborn King Research Fellowships*: Jean S. Morton, M.S. in S.T., M.S.; Bernice T. Radovich, B.A.
- Material Culture of the United States Fellowship*: Harold K. Skramstad, Jr., B.A.
- Medical Center Fellowships*:
- Anatomy*: Peter B. Berendsen, M.S.; Mary Frances K. Ericksen, M.A.; Gordon F. Haas, B.S.; Michael Liebman, M.S.; Frances P. Schulter, M.S.; Corazon S. David, M.D.
- Anesthesiology*: Chana Buakham, M.D.
- Biochemistry*: Peter H. Fishman, M.S.; Susan L. Gartner, M.S.
- Medicine*: Jose M. Abad (Pulmonary Disease), M.D.; Reinhard Baethke (Clinical Pharmacology), Arztl. Vorprufung; William Breesmen (Cardiology), B.S., M.D.; William S. Byers (Cardiology), B.S., M.D.; James K. Cooper, B.A., M.D.; Illuminado A. Cruz, (Renal Disease) M.D.; Carlos A. Dujovne, M.D.; Erich Golob (Endocrinology), M.D.; Thanit Israsena (Endocrinology and Genetics), M.D.; Gurbux H. Nachnani (Cardiology), M.B., B.S., B.J.; Manoochehr Pooya (Cardiology), M.D.; Surendra R. Rishi (Endocrinology), M.B., B.S., M.D.; Cesar Rudzki, M.D.; Rolando Santos (Infectious Disease), M.D.; Rajindra K. Sarin (Cardiology), M.B., B.S.; Michael M. Shefferman (Cardiology,) B.A., M.D.; Ajaib S. Sidhu (Gastroenterology), B.S., M.B., B.S., M.D.; Amir A. Tawakkol (Cardiology), M.D.
- Microbiology*: Susan E. Birnbaum, M.S.; Newton J. Fernandez, M.S.; James Kellogg, B.S.; Edwin C. Murphy, Jr., B.A.; Susan M. Pember, B.A.; Frederick Weinhardt, M.S.; Errol Zeiger, B.S.
- Ophthalmology*: Wanda Folman (Research), M.D.
- Pathology*: Donald F. Cooney (Neuropathology), B.S., M.D.
- Pediatrics*: John A. Anderson (Allergy), B.S., M.D.; Olmedo Villavicencio, M.D.
- Pharmacology*: Gerald Applebaum, B.S.; Markar Dombalagian, B.S.; Sally D. McConnell, B.S.; Herman H. Miller, B.S.; Myron L. Seligman, B.A.
- Physical Medicine and Rehabilitation*: Paul Parrino, M.D., C.P.H., M.P.H.; Olga R. Pruna, M.D.
- Physiology*: William T. Beck (Trainee), B.A.; James F. Grim, B.S.; Carolyn M. Hardin (Trainee), M.A.; Stephen N. Kimani, B.S.; Roberta W. Scherer (Predoctoral Trainee), B.A.; Yih-Fu Shiao, M.D.; Carol F. Whitfield (Trainee), M.S.
- Radiology*: Attila S. Cigtay, M.D.
- National Aeronautics and Space Administration Predoctoral Traineeships*: Jerry L. Alderman, M.S.; Dorothy A. Canter, B.S.; Elizabeth A. Carrico, B.S.; Jerry L. Coffey, M.A.; Jerry W. Gaskill, M.A.; Anne B. Hanratty, B.A.; Hugo D. Junghenn, M.A.; Steven Z. Kahn, M.A.; Ruth D. Koidan, M.A.; Richard C. Lee, B.A.; Donald J. Lofland, B.S.; Douglas E. MacDonald, M.S. in Engr.; Julian M. Menter, M.S.; David A. Schedler, M.S.; Diane J. Slack, B.S.; Richard C. Stewart, B.A.
- National Defense Education Act Foreign Language Graduate Fellowships (Title VI)*: Philip Allen, B.A.; Kathryn A. Haun, B.A.; H. Lyman Miller, B.A.
- National Defense Education Act Predoctoral Fellowships (Title IV)*: Virginia B. Benson, B.A.; Pamela E. Berger, B.A.; James L. Calio, B.A.; Katherine A. Carolan, B.A.; Carol S. Carson, M.A.; Rudolph M. Goepp III, B.A.; Robert J. Jacques, B.A.; Barbara V. Lynch, B.A.; Steven R. Markowitz, B.A.; William J. McHenry, Ed.M.; Deirdre C. Menoyo, B.A.; Diana M. Rorabaugh, B.S.; Nancy G. Schumacher, B.A.; Marcia R. Scott, B.A.; Gerald Siegel, M.A.; Betty B. Ware, Ed.M.; George T. Yungman, Ed.M.

National Endowment for the Humanities Fellowships: Akiko Murakata, B.A.; Michael W. Robbins, M.A.

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Martin Mahler Award in Materials Testing: Lawrence Joseph Kastner, Jr.
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Order of Scarlet Award to that member of the Sophomore Class who has the most outstanding record in extracurricular activities and service to the University: David Allen Nadler
John Ordronaux Award to that member of the graduating class of the School of Medicine with the highest scholastic standing: Howard Byron Dickler
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- Phi Eta Sigma Award to the beginning male student attaining the highest scholastic average in his first full semester of work:* Philip Stewart Margolis
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June 2, 1968

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Burnita Shelton Matthews (LL.B. 1919, LL.M., M.P.L. 1920, LL.D. 1950, National University)

Joseph Sutherland Wright, LL.B. 1937

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Charles Seymour Coakley, M.D. 1937

Justin L. Edgerton, B.A. 1929, J.D. 1931

Mary Murray Kochka, B.A. and B.Dip. in Ed. 1918, M.A. 1931

S. Lazlo Sommer, (Attended 1930-33)

Helen Seegar Stone, M.A. 1949, Ph.D. 1954

GOVERNING BOARD 1968-69

President. — J. Dallas Shirley, B.S. in P.E. 1936, M.A. in Ed. 1945

Vice President. — Lyn Henderson Clark, B.A. 1954

Treasurer. — Reginald D. Barta, B.A. 1958, M.A. 1965

Secretary. — Nancy Pierce Broyhill, B.A. in Govt. 1965

Columbian College of Arts and Sciences:

Alice K. Andersen, B.A. 1941
 Lyn Henderson Clark, B.A. 1954
 Harold E. Mesirow, B.A. 1954, LL.B. 1957

Graduate School of Arts and Sciences:

Victor H. Cohn, Ph.D. 1961
 Peter P. Hill, Ph.D. 1966
 Carl A. Linden, Ph.D. 1966

School of Medicine:

Harvey H. Ammerman, B.S. 1939, M.D. 1943
 Jerome H. Epstein, M.A. 1948, M.D. 1953
 George Speck, M.D. 1941

National Law Center:

Samuel J. L'Hommedieu, LL.B. 1951, LL.M. 1952
 Bernard I. Nordlinger, B.A. 1929, J.D. 1933
 Glen A. Wilkinson, J.D. 1938

School of Engineering and Applied Science:

Laurence R. Brown, B.S. in Engr. 1949, D.B.A. 1968
 William J. Ellenberger, B.S. in E.E. 1930, B.S. in M.E. 1934
 William H. Holt, B.S. in Engr. 1957, LL.B. 1961

School of Education:

Howard O. Johnson, M.A. in Ed. 1948, Ed.D. 1950
 Richard Ray Roberts, M.A. in Ed. 1957, Ed.D. 1964
 J. Dallas Shirley, B.S. in P.E. 1936, M.A. in Ed. 1937

School of Government and Business Administration

William B. Belford, M.A. in Govt. 1960
 Robert A. Kaye, B.A. in Govt. 1948, M.A. in Govt. 1950, D.B.A. 1961
 Fred Winfield Weitzel, B.A. in Govt. 1958

School of Public and International Affairs:

Nancy Pierce Broyhill, B.A. in Govt. 1965
 John Alton Boyer, B.A. in Govt. 1948, J.D. 1950

College of General Studies:

Reginald D. Barta, B.A. 1958, M.A. 1965
 Thomas C. Keach, M.A. 1957
 Geraldine Werner, B.A. 1948

Faculty:

Robert M. Riggs, B.A. 1955
 Robert C. Willson, B.A. 1951

Alumni Trustees:

Edgar R. Baker, B.A. 1941
 Harold K. Bradford, LL.B. 1942
 Donald C. Cook, J.D. 1939, LL.M. 1940
 Harry F. Dowling, M.D. 1931
 William G. White, B.S. in C.E. 1936
 James O. Wright, J.D. 1938

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION

The George Washington University Medical Alumni Association, incorporated in 1959, continues the organization previously known as The George Washington University Medical Society.

The stated purposes of the Association are as follows: "This shall be a nonprofit organization international in scope, whose objectives shall be to provide constructive services for the alumni of the George Washington University School of Medicine, for furthering the art and science of medicine, research, and for the promotion of the welfare

of the George Washington University School of Medicine, its students, the George Washington Hospital and its trainees."

Active membership in the Association consists of: all graduates of the School of Medicine; current members and, on application, past members of the teaching staff of the School of Medicine who hold Doctor's degrees; Doctors of Medicine who have had one or more years of postgraduate training in the George Washington University Hospital. Junior membership consists of all members of the student body of the School of Medicine during the time they are students.

The Medical Alumni Association maintains an office in the School of Medicine at 1331 H Street, N.W., Washington, D.C.

OFFICERS FOR 1968-69

President. — Jack B. Kleh, B.A. 1942, M.D. 1944

President Elect. — Maurice Gromet, B.A. 1931, M.D. 1934

First Vice President. —

Second Vice President. — Thomas A. Wilson, B.A. 1942, M.D. 1944

Secretary. — Jerome Canter, M.D. 1955

Treasurer. — Marvin Footer, B.A. 1938, M.D. 1942

Executive Council:

Jerome Epstein, M.A. 1948, M.D. 1953

Alec Horwitz, B.A. 1920, M.D. 1923

Angelo May, M.D. 1937

Richard Palmer, B.A., M.D. 1944

Carolyn Pincock, B.A. 1931, M.D. 1934

George Speck, M.D. 1941

Allan Zellis, M.D. 1941

THE GEORGE WASHINGTON LAW ASSOCIATION

The George Washington Law Association was founded in 1912 and has been affiliated with the General Alumni Association since 1926. Its purposes as stated in the constitution are to promote high standards of legal education, to keep the alumni of the school in close touch with one another, especially with members of their own classes, to gather and publish at intervals information as to the whereabouts and activities of these alumni, and to further the interests of the school.

Eligible members are those who have matriculated in the school or National University and have left in good standing, and any member or former member of the faculty of the school. Active members are those eligible members who are current contributors to the Law Annual Support program of the University and life members of the George Washington Law Association.

The Association plans publication periodically of the Law Alumni Directory. Law Alumni are urged to keep the Alumni Office informed of their whereabouts so that directory information can be kept up to date.

OFFICERS FOR 1968-69

President. — Oliver Gasch, LL.B. 1932

First Vice President. — Joseph L. Brand, J.D. 1963

Second Vice President. — Philip F. Herrick, LL.B. 1933, LL.M. 1936

Third Vice President. — Marion Edwyn Harrison, LL.B. 1954, LL.M. 1959

Secretary. — Betty Ann Thompson, B.A. 1946, LL.B. 1948

Treasurer. — Alexander L. Stevas, B.A. 1949, LL.B. 1951

Executive Committee:

Joel Barlow, J.D. 1935

Michael P. Bentzen, LL.B. 1964

Henry A. Berliner, Jr., J.D. 1964

Alvin Capp, B.A. 1961, J.D. 1964
 Fred H. Daly, J.D. 1966
 F. Elwood Davis, LL.B. 1943
 Joseph A. DeGrandi, M.S. 1950, J.D. 1952
 Joseph A. DePaul, LL.B. 1950
 Lloyd Fletcher, J.D. 1939
 Harold L. George, LL.B. (Nat'l) 1920
 Philip A. Gragan, B.A. 1953, J.D. 1959
 William S. Hochman, J.D. 1962
 C. Timothy Hopkins, LL.B. 1963
 Joseph D. Hughes, J.D. 1934
 Clarence T. Kipps, Jr., J.D. 1953
 Samuel J. L'Hommedieu, Jr., LL.B. 1951, LL.M. 1952
 Ronald E. Madsen, Sr., J.D. 1955
 Milton E. Mermelstein, B.A. 1930, J.D. 1931
 Katsugo Miho, LL.B. 1953
 Milan C. Miskovsky, LL.B. 1956
 Donald L. Mooers, LL.B. 1963
 Bernard I. Nordlinger, B.A. 1929, J.D. 1933
 Kenneth W. Parkinson, B.A. 1950, LL.B. 1952
 Nad A. Peterson, B.A. 1950, J.D. 1953
 B.R. Pravel, J.D. 1951
 Gordon J. Quist, J.D. 1962
 James Robertson, LL.B. 1965
 William J. Rochelle, Jr., B.A. 1938, J.D. 1940
 Robert D. Rolander, LL.B. 1953
 John V. Skinner, Jr., J.D. 1962
 Ethan Stroud, LL.M. 1956
 Sidney Struble, J.D. 1917, LL.M. (Nat'l) 1919
 Gary L. Theurer, LL.B. 1954
 William C. Thornton, LL.B. 1961
 Richard A. Ward, J.D. 1965
 Sterry R. Waterman, Law (1926)
 George F. Wilsey, J.D. 1958
 Leon L. Wolfstone, J.D. 1939
 James O. Wright, J.D. 1938
 Joseph S. Wright, Jr., LL.B. 1963
 Glen A. Wilkinson, ex officio, J.D. 1938

THE LIBRARY SCIENCE ALUMNI ASSOCIATION

The Library Science Alumni Association was organized in 1932 by graduates of the Division of Library Science and became an affiliate of the General Alumni Association in 1935. It was established to foster a closer relationship between the Faculty and graduates and to further the interests of the Division of Library Science and of the University as a whole.

OFFICERS FOR 1968-69

President. — Anna M. Link, B.A. in L.S. 1933
Vice President. — Mary E. Kelso, B.A. in L.S. 1940
Secretary. — Helen Dargon, B.A. in L.S. 1935
Treasurer. — Elinor Dunnigan, B.A. in L.S. 1930, M.A. 1932

THE ENGINEER ALUMNI ASSOCIATION OF THE GEORGE WASHINGTON UNIVERSITY, INC.

The Engineer Alumni Association was organized in 1936 and was incorporated in 1962. It has worked closely with the General Alumni Association since its organization. Its

objects are to unite the graduates and Faculty of the School in closer fellowship, to promote the general welfare of the School and the University at large, to foster activities of the engineering organizations recognized by the University, and to advance the profession of engineering in general.

OFFICERS FOR 1968-69

President. — Edward A. Wareham III, B.E.E. 1953

Vice President. — William J. Ellenberger, B.S. in E.E. 1930, B.S. in M.E. 1934

Secretary. — Raymond P. Morales, B.S. (E.E.) 1965

Treasurer. — Harvey J. Flatt, B.E.E. 1963

THE GEORGE WASHINGTON UNIVERSITY NURSES ASSOCIATION

The George Washington University Nurses Association was organized in 1914. In 1936, this organization was made an integral part of the General Alumni Association, and graduates of the School of Nursing were accorded associated membership. The objects of the Association are to hold in unison the graduates of the George Washington University Hospital School for Nurses, to care for its sick members, and to promote the advance of nursing in the interest of the George Washington University Hospital.

OFFICERS FOR 1968-69

President. — Katherine M. del Valle

Secretary. — Juanita Love

Treasurer. — Alma Binks

WOMEN'S PHYSICAL EDUCATION ALUMNAE ASSOCIATION

The purpose of this organization is to foster and promote the teaching profession in the fields of Physical Education, Health, and Recreation. Its functions are (1) to attract students to the profession who show evidence of outstanding teaching capability, (2) to offer professional guidance to members in this field of work, (3) to render service to the community, and (4) to render service to the University.

OFFICERS FOR 1968-69

President. — Jane S. Bernot, B.S. in P.E. 1945

Council:

Patricia A. Bergan, B.S. in P.E. 1967

Calva K. Collier, B.S. in P.E. 1949

Theresa Conroy, B.S. in P.E. 1963

Lyndale H. George, B.S. in P.E. 1948, M.A. in Ed. 1952, A.P.C. 1961

Lucie Haid, B.S. in P.E. 1940

Laura Mulligan, B.S. in P.E. 1940

Nan B. Smith, B.S. in P.E. 1962, M.A. in Ed. 1966

Loretta M. Stallings, ex officio

REGIONAL ALUMNI CLUBS

Regional alumni clubs sponsored by the General Alumni Association are active in a number of areas. Information about the officers and activities of these clubs may be obtained from the Alumni Office of the University.

THE LETTERMEN CLUB

The membership of this organization shall consist of those men who, for participation in a sport at George Washington University, have been awarded varsity letters or freshman

numerals, who are no longer undergraduate students of the University; and those men who, for managing a freshman or varsity sport, received letters or numerals.

The objectives of the club are to (1) bring together on a social level former lettermen of all sports, (2) renew acquaintances and promote fellowship, (3) encourage higher ideals of intercollegiate athletics at the University, and (4) assist the University in matters pertaining to athletics when requested.

OFFICERS FOR 1968-69

President. — Joseph J. Bernot, B.S. in P.E. 1950, M.A. in Ed. 1953

Vice President. — Peter P. Labukas, B.S. in P.E. 1947, M.A. in Ed. 1948, A.P.C. 1959

Secretary. — C. Larry Beaver

Treasurer. — Stephen J. Korcheck, B.S. in P.E. 1954, M.A. in Ed. 1966

THE COLUMBIAN WOMEN

The objectives of this organization are (1) the promotion of acquaintanceship among its members, (2) the advancement of women by the founding of scholarships in the various departments of the University, and (3) the promotion of the interests of the University.

MEMBERSHIP

The following persons shall be eligible for active membership: (1) any woman who is currently registered or has been previously registered as a student in the George Washington University; (2) any woman member of the Faculties or Board of Trustees, any woman on the administrative staff; the wife of any member of the Faculties, Board of Trustees, or the administrative staff; and (3) any woman recipient of an honorary degree from the University.

OFFICERS FOR 1968-69

President. — Sue Burnett (Mrs. Irving R.M.) Panzer, B.A. 1941

Immediate Past President. — Elma Williams, B.A. 1954

First Vice President. — Hazel (Mrs. William B.) Hanback, B.A. 1940

Second Vice President. — Ruth Cammack, B.A. 1948

Recording Secretary. — Elizabeth Middlemas, B.A. 1934, M.A. 1941

Corresponding Secretary. — Helen Chick Weiland

Assistant Corresponding Secretary. — Mabel O. Traiser, B.A. 1952

Treasurer. — Lillian Guest, B.A. 1960

Assistant Treasurer. — Ruth E. Myer, M. A. in Govt. 1946

Historian. — Margaret Murray, B.A. 1930, M.A. 1941

General Counsel. — Mary M. Connelly, LL.B. 1922

THE WOMEN'S BOARD

OF THE GEORGE WASHINGTON UNIVERSITY HOSPITAL

The object of this organization is to aid in every way the interests and advancement of the George Washington University Hospital. Meetings are held on the first Wednesday of each month, October to June, inclusive. Inquiries regarding membership should be addressed to the Corresponding Secretary, George Washington University, Washington, D.C. 20006.

OFFICERS FOR 1968-69

Honorary President. — Mrs. Cloyd H. Marvin

President. — Mrs. James J. Feffer

First Vice President. — Mrs. Alvin E. Parrish

Second Vice President. — Mrs. Reginald H. Pledger

Third Vice President. — Mrs. Jed W. Pearson

Recording Secretary. — Mrs. Robert S. Wild

Corresponding Secretary. — Mrs. Charles S. Coakley

Assistant Corresponding Secretary. — Mrs. Benjamin Manchester

Treasurer. — Mrs. J. Blaine Harrell

Assistant Treasurer. — Mrs. Charles R. L. Halley

Directors:

Mrs. Samuel M. Burgess II

Mrs. Francis L. Kiep

Mrs. Martin A. Mason

Mrs. Joseph H. Roe

STATISTICAL RECORD

Summary of Registration 1967-68

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

	FALL SEMESTER			SPRING SEMESTER		
	Men	Women	Total	Men	Women	Total
Lower Division	1,316	1,394	2,710	1,265	1,297	2,562
Upper Division	661	960	1,621	636	938	1,574
Unclassified	1	1	2	-	-	-
Total	1,978	2,355	4,333	1,901	2,235	4,136

GRADUATE SCHOOL OF ARTS AND SCIENCES

Masters Candidates	343	340	683	327	332	659
Doctor of Philosophy	360	143	503	356	143	499
Unclassified	1	-	1	1	-	1
Total	704	483	1,187	684	475	1,159

SCHOOL OF MEDICINE

Doctor of Medicine	382	31	413	380	29	409
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NATIONAL LAW CENTER

Juris Doctor	1,087	89	1,176	972	81	1,053
Master's and Doctor of Juridical Science Degrees	163	2	165	175	3	178
Unclassified	72	7	79	62	9	71
Total	1,322	98	1,420	1,209	93	1,302

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

	FALL SEMESTER			SPRING SEMESTER		
	Men	Women	Total	Men	Women	Total
Undergraduate	267	5	272	249	3	252
Graduate	901	7	908	886	8	894
Unclassified	51	1	52	66	1	67
Total	1,219	13	1,232	1,201	12	1,213

SCHOOL OF EDUCATION

Undergraduate	25	205	230	28	209	237
Graduate	341	445	786	371	455	826
Unclassified	17	43	60	20	24	44
Total	383	693	1,076	419	688	1,107

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

Undergraduate	144	26	170	139	26	165
Graduate	899	92	991	908	93	1,001
Unclassified	33	-	33	21	1	22
Total	1,076	118	1,194	1,068	120	1,188

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Undergraduate	107	94	201	101	101	202
Graduate	123	42	165	123	40	163
Unclassified	-	-	-	2	1	3
Total	230	136	366	226	142	368

COLLEGE OF GENERAL STUDIES

Undergraduate	66	16	82	60	15	75
Graduate	54	1	55	38	-	38
Unclassified	7	3	10	6	3	9
Total	127	20	147	104	18	122

DIVISION OF UNIVERSITY STUDENTS

University students	1,060	812	1,872	875	692	1,567
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SUMMARY

Undergraduate	2,586	2,700	5,286	2,478	2,589	5,067
Graduate	4,653	1,192	5,845	4,536	1,184	5,720
Unclassified	1,242	867	2,109	1,053	731	1,784
Total	8,481	4,759	13,240	8,067	4,504	12,571

SUMMER SESSIONS REGISTRATION 1967

Men	2,796
Women	1,886
Total	4,682

COLLEGE OF GENERAL STUDIES OFF-CAMPUS STUDY

	FALL SEMESTER			SPRING SEMESTER		
	Men	Women	Total	Men	Women	Total
Degree Candidates						
Undergraduate	335	68	403	308	64	372
Graduate	848	29	877	1,020	38	1,058
Total	1,183	97	1,280	1,328	102	1,430
Nondegree Status	2,752	662	3,414	2,636	732	3,368
Total	3,935	759	4,694	3,964	834	4,798

SUMMER SESSIONS 1967

	Men	Women	Total
Degree Candidates			
Undergraduate	126	16	142
Graduate	755	10	765
Total	881	26	907
Nondegree Status	632	166	798
Total	1,513	192	1,705

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

UNITED STATES, TERRITORIES, AND POSSESSIONS

FALL			SPRING		
Alabama	31	28	Illinois	206	202
Alaska	4	4	Indiana	66	67
Arizona	28	25	Iowa	28	26
Arkansas	13	15	Kansas	36	33
California	210	187	Kentucky	39	34
Colorado	51	43	Louisiana	35	35
Connecticut	329	310	Maine	34	33
Delaware	51	46	Maryland	2,374	2,262
District of Columbia	1,862	1,743	Massachusetts	331	308
Florida	170	156	Michigan	100	101
Georgia	62	58	Minnesota	43	37
Hawaii	26	21	Mississippi	10	9
Idaho	32	33	Missouri	70	65

FALL SPRING

Montana	20	17
Nebraska	31	29
Nevada	14	11
New Hampshire	24	21
New Jersey	814	772
New Mexico	13	14
New York	1,464	1,396
North Carolina	59	61
North Dakota	10	8
Ohio	228	220
Oklahoma	30	26
Oregon	22	21
Pennsylvania	647	625
Rhode Island	64	59
South Carolina	41	36

FALL SPRING

South Dakota	14	14
Tennessee	33	32
Texas	119	104
Utah	48	50
Vermont	19	20
Virginia	2,622	2,463
Washington	50	48
West Virginia	38	39
Wisconsin	41	42
Wyoming	15	12
Canal Zone	3	2
Guam	1	1
Puerto Rico	17	18
Virgin Islands	3	3

FOREIGN COUNTRIES

Algeria	1	1
Argentina	3	4
Australia	5	2
Austria	2	2
Belgium	4	3
Bolivia	4	6
Brazil	8	10
British Guiana	-	1
British West Indies	1	1
Burma	2	2
Canada	17	17
Ceylon	1	2
Chile	4	6
China	8	11
Colombia	5	6
Congo, Republic of	1	2
Costa Rica	3	2
Cuba	19	19
Cyprus	1	1
Denmark	3	3
Dominican Republic	1	2
Ecuador	2	1
Egypt	1	1
El Salvador	1	3
England	26	22
Ethiopia	2	2
Finland	-	1
France	9	13
French Guiana	1	-
Germany	17	17
Ghana	2	1
Greece	8	10
Guatemala	2	3
Guyana	2	1
Haiti	2	5
Honduras	1	1

Hong Kong	3	3
Hungary	-	1
India	37	36
Indonesia	3	4
Iran	12	14
Iraq	6	4
Israel	6	8
Italy	2	4
Jamaica	2	2
Japan	13	14
Jordan	2	2
Kenya	3	3
Korea	23	24
Kuwait	1	1
Lebanon	3	3
Liberia	3	2
Libya	2	3
Malaysia	3	3
Mexico	7	6
Morocco	2	-
Netherlands	5	4
Netherlands Antilles	1	1
New Zealand	2	1
Nicaragua	2	2
Nigeria	4	4
North Ireland	1	1
Norway	-	1
Pakistan	3	3
Panama	6	6
Peru	8	6
Philippines, Republic of	18	27
Poland	-	1
Portugal	1	-
Rhodesia	1	1
Saudi Arabia	5	4
Sierra Leone	4	3

FALL SPRING

FALL SPRING

South Africa	1	2
Spain	-	3
Sweden	-	3
Switzerland	-	1
Syria	2	1
Taiwan	4	4
Tanzania	2	2
Thailand	8	8
Trinidad	1	1

Turkey	9	8
United Arab Republic . .	6	7
Uruguay	6	6
Venezuela	4	4
Vietnam	10	7
Wales	-	1
West Indies Federation .	1	1
Stateless	2	2

Summary of Degrees Conferred 1967-68

	SUMMER	FEB.	JUNE	TOTAL
Advanced Professional Certificate	3	1	-	4
Associate in Arts (College of General Studies)	2	4	4	10
Associate in Arts (Columbian College of Arts and Sciences)	1	3	3	7
Associate in Secretarial Administration	-	1	-	1
Bachelor of Arts (College of General Studies)	21	21	29	71
Bachelor of Arts (Columbian College of Arts and Sciences)	94	91	472	657
Bachelor of Arts (School of Public and International Affairs)	12	8	55	75
Bachelor of Arts in Education	12	12	87	111
Bachelor of Business Administration (College of General Studies)	4	-	-	4
Bachelor of Business Administration (School of Government and Business Administration) . . .	14	24	59	97
Bachelor of Laws	63	-	-	63
Bachelor of Science (Columbian College of Arts and Sciences)	10	7	45	62
Bachelor of Science (Civil Engineering)	-	1	8	9
Bachelor of Science (Electrical Engineering)	-	9	19	28
Bachelor of Science (Electronics)	2	1	-	3
Bachelor of Science (Mechanical Engineering)	3	1	7	11
Bachelor of Science in General Studies	10	9	30	49
Bachelor of Science in Geodetic and Cartographic Science	-	1	3	4
Bachelor of Science in Medical Technology	4	1	-	5
Bachelor of Science in Physical Education	1	-	8	9
Doctor of Business Administration	-	3	6	9
Doctor of Education	6	7	13	26
Doctor of Juridical Science	1	-	-	1
Doctor of Medicine	-	-	105	105
Doctor of Philosophy	-	19	24	43
Doctor of Public Administration	-	-	1	1
Doctor of Science	-	1	4	5
Education Specialist	3	-	8	11
Juris Doctor	-	69	251	320
Master of Arts (College of General Studies)	3	-	-	3
Master of Arts (Columbian College of Arts and Sciences)	23	38	37	98

	SUMMER FEB. JUNE TOTAL			
Master of Arts (School of Government and Business Administration)	-	1	-	1
Master of Arts (School of Public and International Affairs)	17	16	17	50
Master of Arts in Education :	113	55	112	280
Master of Arts in Government	3	4	12	19
Master of Arts In International Affairs (College of General Studies)	1	-	-	1
Master of Arts in International Affairs (School of Public and International Affairs)	-	-	1	1
Master of Arts in Teaching	2	-	28	30
Master of Business Administration (College of General Studies)	2	-	-	2
Master of Business Administration (School of Government and Business Administration)	39	38	128	205
Master of Comparative Law	1	-	2	3
Master of Engineering Administration	6	27	35	68
Master of Fine Arts	4	2	6	12
Master of Laws	12	10	31	53
Master of Public Administration	2	-	-	2
Master of Science (Columbian College of Arts and Sciences)	5	13	20	38
Master of Science (School of Engineering and Applied Science)	6	22	29	57
Master of Science in Business Administration (College of General Studies)	181	-	-	181
Master of Science in Business Administration (School of Government and Business Administration)	-	15	13	28
Master of Science in Engineering	2	5	6	13
Master of Science in Financial Management (College of General Studies)	10	-	-	10
Master of Science in Financial Management (School of Government and Business Administration)	-	14	29	43
Master of Science in Governmental Administration (College of General Studies)	2	-	-	2
Master of Science in Governmental Administration (School of Government and Business Administration)	-	9	16	25
Master of Science in International Affairs (College of General Studies)	196	-	-	196
Master of Science in International Affairs (School of Public and International Affairs)	-	8	15	23
Master of Science in Personnel Administration (College of General Studies)	31	-	-	31
Master of Science in Personnel Administration (School of Government and Business Administration)	-	42	60	102
Master of Science in Public Administration (College of General Studies)	55	-	-	55
Master of Science in Public Administration (School of Government and Business Administration)	-	7	1	8
Total	982	620	1,840	3,442

Teaching Staff 1967-68

Professors Emeriti	63
Professors	214
Research Professors	10
Adjunct Professors	10
Visiting Professors	14
Visiting Research Professors	1
Clinical Professors	56
Professorial Lecturers	109
Associate Professors	177
Associate Research Professors	12
Visiting Associate Professors	2
Associate Clinical Professors	116
Associate Professorial Lecturers	97
Assistant Professors	173
Assistant Research Professors	12
Adjunct Assistant Professors	1
Visiting Assistant Professors	2
Assistant Clinical Professors	277
Assistant Professorial Lecturers	110
Instructors	81
Research Instructors	4
Clinical Instructors	226
Lecturers	72
Adjunct Lecturers	10
Special Lecturers	17
Studio Lecturers	24
Clerk in the Trial Practice Court	1
Assistants in the School of Medicine	154
Fellows in the School of Medicine	54
University Teaching Fellows	65
Graduate Teaching Assistants	71
Total	2,235

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